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2025



- FAST MOVERS
- L'ESSENTIEL
- LOS PRINCIPALES

■ Bij uitstek geschikt - Très approprié - Muy adecuado - Ideal geeignet - Very adequate
□ Beperkt geschikt - Approprié - Adecuado - Eingeschränkt geeignet - Adequate

ISO ■	ISO ■	NL	FR	ES	DE	EN
P 11 ≤600 N/mm²	P 11 ≤600 N/mm²	Ongelegeerd en gelegeerd staal ≤600 N/mm² 1.0037 (S137), 1.0038 (S235JR G2), 1.00402 (C22), 1.1178 (C30E)	Aciers non-alliés ou faiblement alliés ≤600 N/mm² 1.0037 (A37), 1.0038 (E 24-2 Ne), 1.00402 (1C20), 1.1178 (1C30)	Acero no aleado ≤600 N/mm² 1.0037 (S235JR), 1.0038 (S235JR G2), 1.0402 (F.112), 1.1178 (C30E)	Unlegierter und legierter Stahl ≤600 N/mm² 1.0037 (S137), 1.0038 (S235JR G2), 1.00402 (C22), 1.1178 (C30E)	Unalloyed and low-alloyed steel ≤600 N/mm² 1.0037 (S137), 1.0038 (S235JR G2), 1.00402 (C22), 1.1178 (C30E)
P 12 ≤850 N/mm²	P 12 ≤850 N/mm²	Ongelegeerd en gelegeerd staal 600 - 850 N/mm² 1.0050 (S150-2), 1.0070 (S170-2), 1.0301 (C10), 1.0503 (C45), 1.1121 (Ck10), 1.1191 (C45E), 1.0718 (11SMnPb30), 1.0736 (11SMn37)	Aciers non-alliés ou faiblement alliés 600 - 850 N/mm² 1.0050 (A50-2), 1.0070 (A70-2), 1.0301 (1C10), 1.0503 (1C45), 1.1121 (XC10), 1.1191 (2C45), 1.0718 (S250PB), 1.0736 (S300PB)	Acero no aleado 600 - 850 N/mm² 1.0050 (Fe490-2), 1.0070 (Fe690-2), 1.0301 (F.1151), 1.0503 (F.114), 1.1121 (F.1510-C10K), 1.1191 (C45K), 1.0718 (F.2112-11SMnPb28), 1.0736 (F.2113-11SMn37)	Unlegierter und legierter Stahl 600 - 850 N/mm² 1.0050 (S150-2), 1.0070 (S170-2), 1.0301 (C10), 1.0503 (C45), 1.1121 (Ck10), 1.1191 (C45E), 1.0718 (11SMnPb30), 1.0736 (11SMn37)	Unalloyed and low-alloyed steel 600 - 850 N/mm² 1.0050 (S150-2), 1.0070 (S170-2), 1.0301 (C10), 1.0503 (C45), 1.1121 (Ck10), 1.1191 (C45E), 1.0718 (11SMnPb30), 1.0736 (11SMn37)
P 13 ≤1000 N/mm²	P 13 ≤1000 N/mm²	Gelegeerd staal 850 - 1000 N/mm² 1.0727 (46S20), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (X210Cr12), 1.2083 (X42Cr13), 1.2767 (X45NiCrMo4), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)	Aciers alliés 850 - 1000 N/mm² 1.0727 (45MF4), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (Z200C12), 1.2083 (Z40C14), 1.2767 (Y35NCD16), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)	Acero aleado 850 - 1000 N/mm² 1.0727 (46S20), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (F.5212-X210Cr12), 1.2083 (X42Cr13), 1.2767 (X45NiCrMo4), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)	Legierter Stahl 850 - 1000 N/mm² 1.0727 (46S20), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (X210Cr12), 1.2083 (X42Cr13), 1.2767 (X45NiCrMo4), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)	Alloyed steel 850 - 1000 N/mm² 1.0727 (46S20), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (X210Cr12), 1.2083 (X42Cr13), 1.2767 (X45NiCrMo4), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)
P 14 ≤1400 N/mm²	P 14 ≤1400 N/mm²	Gelegeerd staal 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)	Aciers alliés 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)	Acero aleado 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)	Legierter Stahl 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)	Alloyed steel 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)
H 15 HRC	H 15 HRC	Gehard en inzetgehard staal 50 - 60 HRC 1.2344 (X40CrMoV5), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2080 (X210Cr12), 1.3343 (S6-5-2)	Aciers trempés et Aciers de cémentation alliés 50 - 60 HRC 1.2344 (Z 40 CDV 5), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2379 (D2), 1.2080 (Z200C12), 1.3343 (Z85WDCV)	Acero templado 50 - 60 HRC 1.2344 (X40CrMoV5), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2080 (X210Cr12), 1.3343 (S6-5-2)	Gehärteter und einsatzgehärteter Stahl, 50–60 HRC 1.2344 (X40CrMoV5), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2080 (X210Cr12), 1.3343 (S6-5-2)	Hardened and case hardenend steel 50 - 60 HRC 1.2344 (X40CrMoV5), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2080 (X210Cr12), 1.3343 (S6-5-2)
M 21 INOX ≤850N/mm²	M 21 INOX ≤850N/mm²	Roestvaststaal, INOX ≤850 N/mm² 1.4005 (X12CrS13), 1.4104 (X14CrMos17), 1.4105 (X6CrMoS17), 1.4301 (XCrNi18-10)(304), 1.4305 (X8CrNiS18-9)(303)	Aciers inoxydables ≤850 N/mm² 1.4005 (Z11CF13), 1.4104 (Z13CF17), 1.4105 (Z8CF17), 1.4301 (XCrNi18-10)(304), 1.4305 (X8CrNiS18-9)(303)	Acero inoxidable ≤850 N/mm² 1.4006 (F.3401-X10Cr13), 1.4104 (F.3117-X10CrS17), 1.4301 (F.3504-X5CrNi18-10)(304), 1.4305 (F.3508-X10CrNiS18-09)(303)	Rostfreier Stahl, INOX ≤850 N/mm² 1.4005 (X12CrS13), 1.4104 (X14CrMos17), 1.4105 (X6CrMoS17), 1.4301 (XCrNi18-10)(304), 1.4305 (X8CrNiS18-9)(303)	Stainless steel, INOX ≤850 N/mm² 1.4005 (X12CrS13), 1.4104 (X14CrMos17), 1.4105 (X6CrMoS17), 1.4301 (XCrNi18-10)(304), 1.4305 (X8CrNiS18-9)(303)
M 22 INOX >850N/mm²	M 22 INOX >850N/mm²	Roestvaststaal, INOX >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (X6CrNiMoTi17-12-2)(316Ti)	Aciers inoxydables >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (X6CrNiMoTi17-12-2)(316Ti)	Acero inoxidable >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (F.3535-X6CrNiMoTi17-12-2)(316Ti)	Rostfreier Stahl, INOX >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (X6CrNiMoTi17-12-2)(316Ti)	Stainless steel, INOX >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (X6CrNiMoTi17-12-2)(316Ti)
K 31 GG	K 31 GG	Grijs gietijzer GG <260 HB30 0.6015 (GG 15), 0.6025 (GG 25), 0.6040 (GG 40)	Fontes <260 HB30 0.6015 (GG 15), 0.6025 (GG 25), 0.6040 (GG 40)	Fundición gris con grafito laminado GG <260 HB30 0.6015 (FG15), 0.6025 (FG25), 0.6040 (FG40)	Grauguss GG <260 HB30 0.6015 (GG 15), 0.6025 (GG 25), 0.6040 (GG 40)	Grey cast iron GG <260 HB30 0.6015 (GG 15), 0.6025 (GG 25), 0.6040 (GG 40)
K 32 GGG GTS-GTW	K 32 GGG GTS-GTW	Smeedbaar en Nodulair gietijzer <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)	Fontes à graphites et malléables <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)	Fundición gris con grafito esteroideal <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)	Formbar und dehnbares Gusseisen <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)	Nodular and malleable cast iron <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)
N 41 Alu	N 41 Alu	Aluminium en Aluminiumlegeringen 3.0255 (Al99.5), 3.2315 (AlMgSi1), 3.3515 (AlMg1)	Aluminium et Alliages d'Aluminium 3.0255 (A59050C), 3.2315 (AlMgSi1), 3.3515 (AlMg1)	Aluminio y aleaciones de Aluminio 3.0255 (A99.5), 3.2315 (AlMgSi1), 3.3515 (AlMg1)	Aluminium und Aluminiumlegierungen 3.0255 (Al99.5), 3.2315 (AlMgSi1), 3.3515 (AlMg1)	Aluminium and Aluminium alloys 3.0255 (Al99.5), 3.2315 (AlMgSi1), 3.3515 (AlMg1)
N 42 Alu Si>10%	N 42 Alu Si>10%	Gietaluminium Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9),, 3.2581 (G-AlSi12), 3.2583 (G-AlSi12Cu)	Alliages d'Aluminium Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9), 3.2581 (G-AlSi12), 3.2583 (G-AlSi12Cu)	Fundición de Aluminio aleada Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9), 3.2581 (L-2520,21), 3.2583 (L2530)	Druckguss Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9), 3.2581 (G-AlSi12), 3.2583 (G-AlSi12Cu)	Cast Aluminium Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9),, 3.2581 (G-AlSi12), 3.2583 (G-AlSi12Cu)
N 43 Mg	N 43 Mg	Magnesiumlegeringen 3.5200 (MgMn2), 3.5812 (G-MgAl8Zn1), 3.5612 (G-MgAl6Zn1)	Alliages de Magnésium 3.5200 (MgMn2), 3.5812 (AZ81hp), 3.5612 (AZ61)	Aleaciones de Magnesio 3.5200 (MgMn2), 3.5812 (AZ81hp), 3.5612 (AZ61)	Magnesiumlegierungen 3.5200 (MgMn2), 3.5812 (G-MgAl8Zn1), 3.5612 (G-MgAl6Zn1)	Magnesium alloys 3.5200 (MgMn2), 3.5812 (G-MgAl8Zn1), 3.5612 (G-MgAl6Zn1)
N 51 Cu	N 51 Cu	Koper en Koperlegeringen 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPb), 2.0380 (CuZn39Pb2), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)	Cuivres et Alliages de cuivres 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPb), 2.0380 (CuZn40), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)	Cobre y aleaciones de cobre 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPb), 2.0380 (CuZn39Pb2), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)	Kupfer und Kupferlegierungen 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPb), 2.0380 (CuZn39Pb2), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)	Copper and copper alloys 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPb), 2.0380 (CuZn39Pb2), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)
N 52 CuAlFe	N 52 CuAlFe	Koper- en Aluminiumlegering 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (CuBe2) AMPCO® 8, AMPCO® 8 15, AMPCO® 18	Cuivre et Alliages d'Aluminium 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (CuBe1.9) AMPCO® 8, AMPCO® 8 15, AMPCO® 18	Cobre y aleaciones de Aluminio 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (CuBe2) AMPCO® 8, AMPCO® 8 15, AMPCO® 18	Kupfer- und Aluminiumlegierungen 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (Cu-Be2) AMPCO® 8, AMPCO® 8 15, AMPCO® 18	Copper and Aluminium alloys 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (CuBe2) AMPCO® 8, AMPCO® 8 15, AMPCO® 18
N 61 PVC	N 61 PVC	Duroplastic en Thermoplastic PMMA, PVC, PE, PP, PTFE	Duroplastiques et Thermoplastiques PMMA, PVC, PE, PP, PTFE	Duroplásticos en Termoplásticos PMMA, PVC, PE, PP, PTFE	Duroplaste und Thermoplaste PMMA, PVC, PE, PP, PTFE	Duroplastics en Thermoplastics PMMA, PVC, PE, PP, PTFE
N 62 GFK/CFK	N 62 GFK/CFK	Versterkte kunststoffen GFK, CFK	Plastiques réenforcés GFK, CFK	Plásticos reforzados GFK, CFK	Verstärkte Kunststoffe GFK, CFK	Reinforced plastics GFK, CFK
S 71 Ni/Co	S 71 Ni/Co	Nikkel- en Cobaltlegeringen Hastelloy, Inconel, Nimonic, Jetalloy	Alliages de Nickel et de Cobalt Hastelloy, Inconel, Nimonic, Jetalloy	Aleaciones de Niquel y Cobalto Hastelloy, Inconel, Nimonic, Jetalloy	Nickel und Kobaltlegierungen Hastelloy, Inconel, Nimonic, Jetalloy	Nikkel and Cobalt alloys Hastelloy, Inconel, Nimonic, Jetalloy
S 72 Ti	S 72 Ti	Titaniumlegeringen 3.7024 (Ti99.5), 3.7114 (TiAl5Sn2,5), 3.7124 (TiCu2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2,5)	Alliages de Titane 3.7024 (T35), 3.7114 (TiAl5Sn2,5), 3.7124 (T-U2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2,5)	Titanio aleado 3.7024 (Ti99.5), 3.7114 (TiAl5Sn2,5), 3.7124 (TiCu2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2,5)	Titanlegierungen 3.7024 (Ti99.5), 3.7114 (TiAl5Sn2,5), 3.7124 (TiCu2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2,5)	Titanium alloys 3.7024 (Ti99.5), 3.7114 (TiAl5Sn2,5), 3.7124 (TiCu2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2,5)



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- Ideal force distribution
- Drilling at an angle

- Professioneel licht boren uit de hand
- Ideale krachtverdeling
- Boren onder een hoek

- Perçage facile & rapide
- Répartition idéale des forces
- Perçage angulaire possible

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- Distribución de fuerza ideal
- Permite taladrar en ángulo

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- Ideale Kraftverteilung
- Winkelbohren



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Erste Wahl
Garantiert bewährte Gewinde
1 Gewindebohrer für alle Materialien

1 SC

1 HSS(+E)

2

3 SC

3 HSS-E

4

5

6

7

8

ETC.

9



ICONEN

ICONES

ICONOS

PIKTOGRAMME

ICONS

	NL	FR	ES	DE	EN
HSS	HSS	HSS	HSS	HSS	HSS
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalto)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)
HM-TIP	Hardmetaal Tip	Plaquette carbure brasée	Plaquetas de metal duro soldadas	mit HM- Schneiden	Carbide Tipped
TiN	TiN gecoat	Revêtement TiN	Recubrimiento TiN	TiN Beschichtung	TiN coated
TiAIN	TiAIN gecoat	Revêtement TiAIN	Recubrimiento TiAIN	TiAIN Beschichtung	TiN coated
OX.	Stoomontlaten	Vaporisé	Vaporizado	Dampfangelassen	Steam tempered
DIN 338	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm
NORM	Fabriek standaard	Standard usine	Estándar de la fábrica	Werksnorm	Factory standard
NFE 66051-A	NFE norm	Norme NFE	Norma NFE	NFE Norm	NFE norm
N	Type N, standaard spiraaluitvoering	Type N, hélice standard	Tipo N, Versión helicoidal estándar	Type N, standard Spiralwinkel	Type N, standard spiral
>N	Spiraalhoek sterker dan standaard	Hélice plus rapide que standard	Ángulo de hélice más rápido que estándar	Spiralwinkel starker wie Standard	Helix quicker than standard
TS	Type TS, Tiefloch-spiraal	Type TS, goujure large	Tipo TS, Hélice para perforación profunda	Type TS, Tiefloch Spiral	Type TS, deep hole helix
	Cilindrische schacht	Queue cylindrique	Mango cilíndrico	Zylinderschaft	Straight shank



	NL	FR	ES	DE	EN
Ø13	Afgedraaide schacht	Queue réduite	Mango rebajado	Abgedrehtem Zylinderschaft	Reduced shank
DIN 228-B	Morse Konus Opname	Cône morse	Mango cónico	Morsekegel	Morse Taper shank
	Standaard boorpunt	Affûtage standard	Afilado normal	Standard Bohrerspitze	Standard drill point
	Kruisaanslijping	Affûtage en croix	Afilado en Cruz	Kreuzanschliff	Splitpoint
	S-aanslijping	Affûtage en S	Afilado en S	S-Anschliff	S point
	Met verdunde punt	Ame amincie	Con alma delgada	Ausgedünnte Spitze	With thinned point
	HM-Snijkanen	A plaquettes carbure brasées	Punta Metal Duro	HM-Schneiden	Carbide Tipped
118°	Tophoek	Angle au sommet	Ángulo de la punta	Spitzenwinkel	Top angle
60°	Uitvoering centreergat	Angle de lamage	Versión ángulo avellanado	Ausführung Zentrierloch	Centre hole
INOX	T.b.v. roestvaststaal	Pour Inox	Para acero inoxidable	Für Rostfreier Stahl	For stainless steel
ECO PRO	ECO PRO, industrie kwaliteit	ECO PRO, qualité industrielle	ECO PRO, calidad de la industria	ECO PRO, Industriequalität	ECO PRO, industry quality
ECO	ECO, basis kwaliteit	ECO, qualité standard	ECO, calidad básica	ECO, grundlegen- de Qualität	ECO, basic quality



ICONEN

ICONES

ICONOS

PIKTOGRAMME

ICONS

	NL	FR	ES	DE	EN
HSS	HSS	HSS	HSS	HSS	HSS
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalto)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)
HSS-E PM	PowderMetal HSS-E (5% Cobalt)	Acier rapide fritté de haute qualité	Acero rápido pulvimetalúrgico	Pulvermetall HSS-E (5% Cobalt)	PowderMetal HSS-E (5% Cobalt)
M	Metrisch	Métrique	Métrica	Metrisch	Metric
MF	Metrisch Fijn	Métrique pas fin	Métrica Fina	Metrisch Fein	Metric Fine
BSP G	British Standard Pipe (Gasdraad)	Filetage BSP(Gaz)	Rosca BSP (Gas)	British Standard Pipe (Gasgewinde)	British Standard Pipe (Gas thread)
EG	EG (Phan-Coil)	EG (Phan-Coil)	EG (Phan-Coil)	EG (Phan-Coil)	EG (Phan-Coil)
Phan-Coil	Schroefdraad- reparatie	Réparation de filetage	Reparar de rosca	Gewindereparatur	Thread repair
60°	Tophoek schroefdraad	Angle au sommet	Ángulo de punta de la rosca	Flankenwinkel	Point angle
TiN	TiN gecoat	Revêtement TiN	Recubrimiento TiN	TiN Beschichtung	TiN coated
OX.	Stoomontlaten	Vaporisé	Vaporizado	Dampfangelassen	Steam tempered
DIN 371	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm
NFE 66103	NFE norm	Norme NFE	Norma NFE	NFE Norm	NFE norm
ISO 529	ISO norm	Norme ISO	Norma ISO	ISO Norm	ISO norm
NORM	Fabriek standaard	Standard usine	Estándar de la fábrica	Werksnorm	Factory standard



	NL	FR	ES	DE	EN
2,5xD	Max. draadlengte	Profondeur max. de taraudage	Profundidad máx. de roscar	Max. Gewindelänge	Max. thread length
	Set a 3 stuks	Jeu de 3 pièces	Juego de 3 piezas	Satz von 3 Stück	Set of 3
	Voor handgebruik	Pour usage à la main	Para uso manual	für Handgebrauch	For hand use
38°	Spiraalhoek	Angle d'hélice	Angulo de hélice	Spiralwinkel	Spiral angles
Form B	Met schilaansnijding	Coupe GUN	Con entrada corregida (GUN)	Schälanschnitt	GUN nosed
2,5	Aantal gangen aansnijding	Nombre de filets	Número de hilos	Anzahl Gängen Anschnitt	Number of lead chamfers
	Draad teruglopend na de 5e gang	Tronqués après le 5ème filet	Roasca rebajada a partir de 5° hilo	Rücklaufend nach dem 5. Gang	Back tapered after the 5th chamfer
	Schilaansnijding snijplaten	Entrée GUN	Entrada corregida (GUN)	Schälanschnitt Schneideseisen	Chamfer form for dies
	Doorlopende gaten	Trou débouchant	Agujero pasante	Durchgangslöcher	Through holes
	Blinde gaten	Trou borgne	Agujero ciego	Sacklöcher	Blind holes
2B	Tolerantie 2B	Tolérance 2B	Tolerancia 2B	Toleranz 2B	Tolerance 2B
INOX	T.b.v. roestvaststaal	Pour Inox	Para acero inoxidable	Für Rostfreier Stahl	For stainless steel
UNI	Universeel	Universel	Universal	Universal High Performance	Universal
ECO PRO	ECO PRO, industrie kwaliteit	ECO PRO, qualité industrielle	ECO PRO, calidad de la industria	ECO PRO, Industriequalität	ECO PRO, industry quality
ECO	ECO, basis kwaliteit	ECO, qualité standard	ECO, calidad básica	ECO, grundlegen- de Qualität	ECO, basic quality

	 ICONEN ICONES ICONOS PIKTOGRAMME ICONS					
	NL	FR	ES	DE	EN	
HSS	HSS	HSS	HSS	HSS	HSS	 Variabele tandsteek A pas variable Paso variable Variabler Verzahnung Variable pitch
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalto)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	 Verzinkhoek Angle de chanfreinage Ángulo de avellanar Senkwinkel Countersinking angle
VHM SC	Volhardmetaal	Carbure monobloc	Metal duro integral	Hartmetall	Solid Carbide	 Cilindrische schacht Queue cylindrique Mango cilíndrico Zylinderschaft Straight shank
OX.	Stoomontlaten	Vaporisé	Vaporizado	Dampfangelassen	Steam tempered	 Morse Konus Opname Cône morse Mango cónico Morsekegel Morse Taper shank
NIT.	Genitreerd	Nitruré	Nitrurado	Nitriert	Nitrated	 Bitopname (1/4") Queue hexagonale 1/4" (6,35 mm) Mango hexagonal 1/4" (6,35 mm) Bitaufname (1/4") Hexagonal shank 1/4"
TiAIN	TiAIN geccoat	Revêtement TiAIN	Recubrimiento TiAIN	TiAIN Beschichtung	TiN coated	 Voor handgebruik Pour usage à la main Para uso manual für Handgebrauch For hand use
DIN 335-C	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm	 Parabolisch geslepen spaankamer Goujure droite Labios rectos Parabolisch gesliefen Spanraum Parabolic cut chip chamber
	Verzinkfrees met schuin gat	Fraise à chanfreiner à trou	Avellanador con agujero	Kegelsenker mit schräger Bohrung	Countersink with through holes	 Recht geslepen spaankamer Goujure parabolique Labios parabólicos Gerade gesliefen Spanraum Straight chiproom
	Verzinkfrees 3 snijkanten, frezende bewerking	Fraise à chanfreiner à 3 dents, pour fraisage	Avellanador con 3 dientes, para fresar	Kegelsenker mit 3 Schneiden, für fräsen	Countersink with single flute	 ECO PRO, industrie kwaliteit ECO PRO, qualité industrielle ECO PRO, calidad de la industria ECO PRO, Industriequalität ECO PRO, industry quality
	Verzinkfrees 3 snijkanten, borende bewerking	Fraise à chanfreiner à 3 dents, pour perçage	Avellanador con 3 dientes, para taladar	Kegelsenker mit 3 Schneiden, für Bohren	Countersink with 3 flutes, for milling applications	 ECO, basis kwaliteit ECO, qualité standard ECO, calidad básica ECO, grundlegend- de Qualität ECO, basic quality

	 ICONEN ICONES ICONOS PIKTOGRAMME ICONS					
	NL	FR	ES	DE	EN	
HSS	HSS	HSS	HSS	HSS	HSS	 Morse Konus Opname Cône morse Mango cónico Morsekegel Morse Taper shank
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalto)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	 Oplopend met 0,01 mm Croissant par 0,01 mm Creciente por 0,01 mm Ansteigend mit 0,01 mm Increasing with 0.01 mm
DIN 212-B	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm	 Passing Tolérance Tolerancia Passung Tolerance
h8	Cilindrische schacht h8	Queue cylindrique h8	Mango cilíndrico h8	Zylinderschaft h8	Straight shank h8	 Tolerantie diameter Tolérance diamètre Tolerancia diámetro Toleranz Durchmesser Tolerance diameter

1 SC

1 HSS(+E)

2

3 SC

3 HSS-E

4

5

6

7

8

ETC.

9



ICONEN

ICONES

ICONOS

PIKTOGRAMME

ICONS

	NL	FR	ES	DE	EN		NL	FR	ES	DE	EN
HSS	HSS	HSS	HSS	HSS	HSS		Hardhout	Bois dur	Madera dura	Hartholz	Also suitable for hardwood
HSS-E 8%	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)		Hogesnelheid-snedes	Coupe ultra-rapide	Corte rápido	Sehr schneller Schnitt	High-speed cut
HM-TIP	Hardmetaal Tip	Plaquette carbure brasée	Plaquetas de metal duro soldadas	mit HM-Schneiden	Carbide Tipped		Keukenblad	Plan de travail	Encimera	Küchenarbeitsplatten	Kitchen worktop
BiM HSS	HSS Bi-Metaal	Bi-métal HSS	HSS Bimetálica	HSS Bi-Metall	HSS Bi-Metall		Laminaat	Parquet	Laminado	Laminat	Laminate
OX.	Stoomontlaten	Vaporisé	Vaporizado	Dampfangelassen	Steam tempered		Gelamineerde platen	Contreplaqué filmé	Chapa laminada	Beschichtete Platten	Laminated board
NIT.	Genitreerd	Nitruré	Nitrurado	Nitriert	Nitrated		Gelijmd hout	Contreplaqué	Tableros contrachapada	Multiplex / Tischlerplatten	Multiplex / glued wood
TiN	TiN gecoat	Revêtement TiN	Recubrimiento TiN	TiN Beschichtung	TiN coated		Non ferro / aluminium	Non ferreux / aluminium	Metal no férreo / Aluminio	Buntmetall / Aluminium	Non-ferrous metals / Aluminium
INOX	T.b.v. roestvaststaal	Pour Inox	Para acero inoxidable	Für Rostfreier Stahl	For stainless steel		Renovatie / Raamkozijnen	Renovation bâtiment / Châssis fenêtre	Renovación / Marcos	Altbausanierung / Fensterrahmen	Old-building renovation / window frames
UNI	Voor verschillende materiaaldiktes	Pour pouvoir scier différentes épaisseurs de matériau	Para poder serrar material con diferentes espesores	Zur Bearbeitung unterschiedlicher Materialdicken	For multiple material thicknesses		Open profielen	Profil ouvert	Perfil abierto	Offene Profile	Open profile
0.5-25 mm	Materiaaldikte	Épaisseur du matériau	Espesor de material	Materialstärke	Material thickness		Pallets	Palette / Bois de palette	Pallet	Palettenbau	Pallet-construction
BW	Om en om afgeschuinde tand	Denture angulaire moyenne alternée	Forma de diente gruesa alternativa	Gebogene Zahn, jeder zweite abgeschrägt	Alternately tapered (BW)		Kunststof	Plastique	Plástico	Kunststoff	Plastics
C	Met voor- en nasnijder	Denture rectifiée et affûtée	Con dientes rectificadas y afiladas	Mit Vor- und Nachschneider	With pre-cutter and post-cutter		Multiplex	Contreplaqué	Madera contrachapada	Sperrholz	Multiplex
Ø19 WELDON	Standaard kernboor opname Weldon 19 mm	Cône fraise à carotter standard, Weldon 19 mm	Sujeción estándar fresa hueca, Weldon 19 mm	Standard Kernbohrer-aufnahme Weldon 19 mm	Standard core drill shank		Versterkt kunststof	Plastique renforce	Plástico fortalece	Faserverstärkte Kunststoffe	Reinforced plastics
Ø19 QUICK	Snelwisselopname Quick 19 mm	Changement rapide d'outil 19 mm	Sujeción de cambio rápido 19 mm	Schnellwechsel Kernbohrer-aufnahme 19 mm	Rota-Quick® shank 19 mm		Sandwich panelen	Contreplaquet	Material tupo Sandwich	Sandwich-Material	Sandwich material
Ø18 FEIN QUICKIN	Fein Quickin kernboor opname 18 mm	Cône fraise à carotter Fein Quickin 18 mm	Sujeción Fein Quickin fresa hueca 18 mm	Fein Quickin Kernbohrer-aufnahme 18 mm	Fein QuickIN shank 18 mm		Dun plaatmateriaal	Matériaux plat fins	Material de chapas fino	Stahbleche	Sheet steel
	Kokerprofiel dunwandig	Profilés fins	Material de perfiles delgado	Schlauchmaterial dünn	Thin tube profile		Zacht hout / bouwhout	Bois de construction	Madera de construcción	Weich- / Konstruktionsholz	Softwood / construction wood
	Kokerprofiel dikwandig	Profilés épais	Material de perfiles grande	Schlauchmaterial dick	Thick tube profile		Stalen buizen	Tube en acier	Tubos en acero	Stahlrohre	Steel pipe
GG	Buis gietijzer	Tube fonte	Tubo fundición	Gussrohre	Cast iron pipe		Rechte snedes	Coupe droite	Corte recto	Gerader Schnitt	Straight cut
	Gesloten profiel	Profil fermé	Perfil cerrado	Geschlossene Profile	Closed profile		Schone snedes	Coupe sans éclats sur la surface	Corte muy liso	Sehr sauberer Schnitt	Straight cut
	Contoursneds	Pour contours	Corte perfiles	Kurvenschnitt	Curve cut						



ICONEN

ICONES

ICONOS

PIKTOGRAMME

ICONS

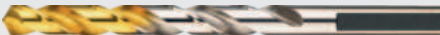
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DIN 225	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm	n6	Tolerantie buitenmaat	Tolérance du diamètre externe	Tolerancia diámetro externo	Toleranz Aussen-durchmesser	Thick tube profile
TYPE A	Standaard uitvoering	Version standard	Versión estándar	Standard Ausführung	Standard version	C T 	Druk- en trekcompensatie	Compensation de pression et de traction	Compensación de presión y de tracción	Ausgleich für Druck und Zug	Push and pull compensation
	Klopvaste uitvoering	Tenue aux percussions	Resistente a percusiones	Schlagfester Ausführung	Hammer drilling		Omkeerinrichting	Avec dispositif d'inversion	Con dispositivo de inversión	Mit Umkehrvorrichtung	With pendular system
F7	Tolerantie boringsdiameter	Tolérance d'alésage	Tolerancia de escariado	Toleranz Bohrungs-durchmesser	Tolerances						

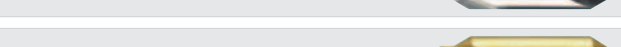
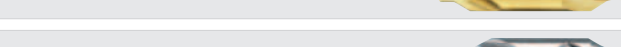
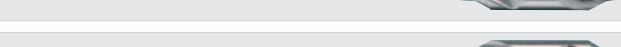
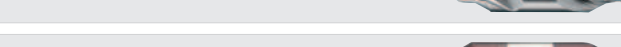
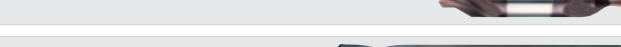
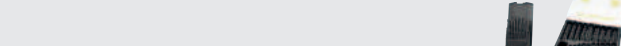
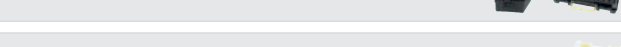
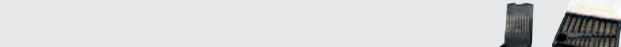
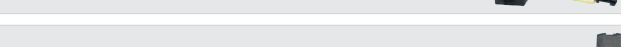
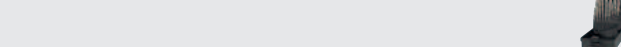
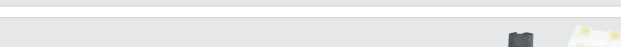
NL Index
FR Index
ES índice
DE Übersicht
EN Index

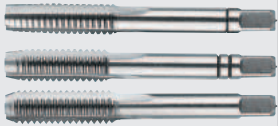
P **K** Bij uitstek geschikt
Très approprié
H **N** Muy adecuado
M **S** Ideal geeignet
Very adequate

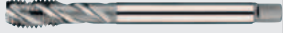
P **K** Beperkt geschikt
Approprié
H **N** Adecuado
M **S** Eingeschränkt geeignet
Adequate

P= pagina
P= page
P= página
P= Seite

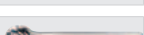
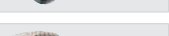
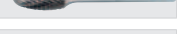
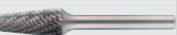
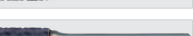
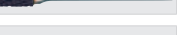
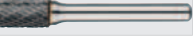
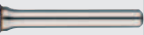
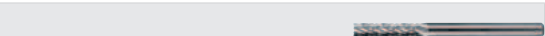
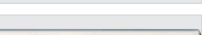
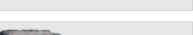
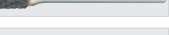
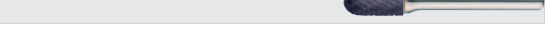
> 11.110	INTERNATIONAL TOOLS	HSS	DIN 1897	ECO	P	M	K	N			P. 12
> 11.120	INTERNATIONAL TOOLS	HSS	C6.3 1/4"	ECO	P		K	N			P. 12
> 11.130	Phantom	HSS	DIN 1897		P	M	K	N			P. 12
> 11.145	Phantom	HSS	NORM		P	M	K	N			P. 13
> 11.150	INTERNATIONAL TOOLS	HSS-E	DIN 1897	ECO PRO	P	M	K	N			P. 13
> 11.160	Phantom	HSS-E	DIN 1897		P	M	K	N			P. 14
> 11.161	Phantom	HSS-E	DIN 1897		P	M	K	N			P. 14
> 11.400	INTERNATIONAL TOOLS	HSS	DIN 338	ECO	P		K				P. 15
> 11.403	Phantom	HSS	Ø13		P	M	K	N		 NEW	P. 16
> 11.413	INTERNATIONAL TOOLS	HSS	Ø13	ECO	P		K				P. 16
> 11.414	INTERNATIONAL TOOLS	HSS	Ø13	ECO	P		K			 NEW	P. 16
> 11.415	INTERNATIONAL TOOLS	HSS-E	Ø13	ECO PRO	P	M	K	N			P. 17
> 11.416	INTERNATIONAL TOOLS	HSS	DIN 338	ECO	P		K	N			P. 17
> 11.420	INTERNATIONAL TOOLS	HSS	DIN 338	ECO PRO	P		K	N			P. 18
> 11.423	INTERNATIONAL TOOLS	HSS	DIN 338	ECO	P		K	N			P. 18
> 11.426	INTERNATIONAL TOOLS	HSS	DIN 338	ECO	P		K	N			P. 19
> 11.430	INTERNATIONAL TOOLS	HSS	DIN 338	ECO PRO	P		K	N			P. 20
> 11.431	INTERNATIONAL TOOLS	HSS	DIN 338	ECO PRO	P	M	K	N			P. 21
> 11.434	INTERNATIONAL TOOLS	HSS			P	M	K	N		 NEW	P. 21
> 11.440	Phantom	HSS			P	M	K	N			P. 22
> 11.441	Phantom	HSS			P	M	K	N			P. 22
> 11.443	Phantom	HSS			P	M	K	N			P. 23
> 11.445	Phantom	HSS-E			P	M	K	N			P. 23
> 11.446	Phantom	HSS-E			P	M	K	N			P. 24
> 11.447	Phantom	HSS-E			P	M	K	N			P. 24
> 11.450	Phantom	HSS	DIN 338		P	M	K	N			P. 25
> 11.451	Phantom	HSS	DIN 338		P	M	K	N			P. 26
> 11.461	Phantom	HSS	DIN 338		P	M	K	N			P. 27
> 11.490	INTERNATIONAL TOOLS	HSS-E	DIN 338	ECO PRO	P	M	K	N			P. 27
> 11.500	Phantom	HSS-E	DIN 338		P	M	K	N			P. 28
> 11.506	Phantom	HSS-E	DIN 338		P	M	K	N			P. 29
> 11.600	Phantom	HM-TIP	DIN 338		P	M	K	N	S H		P. 30
> 11.760	Phantom	HSS-E	DIN 338	INOX	P	M		S			P. 30

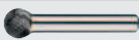
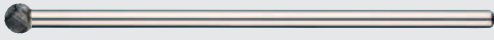
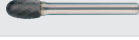
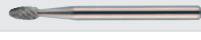
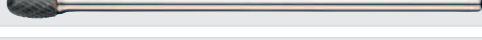
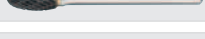
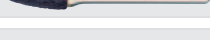
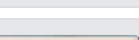
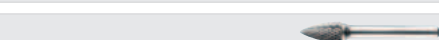
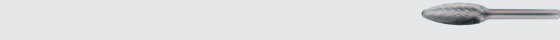
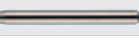
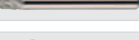
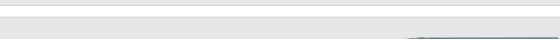
> 11.813	INTERNATIONAL TOOLS	HSS	DIN 340	ECO PRO	P		K	N		P. 31
> 11.815	Phantom	HSS	DIN 340		P	M	K	N		P. 32
> 11.820	Phantom	HSS-E	DIN 340	INOX	P	M		S		P. 32
> 11.860	Phantom	HSS	DIN 340	TS	P		K	N		P. 33
> 11.890	Phantom	HSS	NORM		P	M	K	N		P. 33
> 11.900	Phantom	HSS	DIN 1869		P		K	N		P. 34
> 11.920	Phantom	HSS	DIN 1869	TS	P		K	N		P. 34
> 11.940	Phantom	HSS-E	DIN 1869	TS	P	M	K	N		P. 35
> 12.400	INTERNATIONAL TOOLS	HSS	DIN 345	DIN 228-B	P		K			P. 35
> 12.440	Phantom	HSS	DIN 345	DIN 228-B	P	M	K	N		P. 36
> 12.500	Phantom	HSS-E	DIN 345	DIN 228-B	P	M	K	N		P. 37
> 12.900	Phantom	HSS	DIN 1870	DIN 228-B	P	M	K	N		P. 37
> 12.910	Phantom	HSS	NORM	DIN 228-B	P	M	K	N	 	P. 38
> 13.740	Phantom	HM	Z=2	SOS						P. 38
> 13.744	Phantom	HM	Z=4	SOS						P. 39
> 15.095	INTERNATIONAL TOOLS	HSS	DIN 333-A	60°	P		K	N		P. 39
> 15.096	INTERNATIONAL TOOLS	HSS	DIN 333-A	60°	P		K	N		P. 39
> 15.100	Phantom	HSS	DIN 333-A	60°	P		K	N		P. 40
> 15.120	Phantom	HSS-E	DIN 333-A	60°	P	M	K	N		P. 40
> 15.124	Phantom	HSS-E	DIN 333-A	60°	P	M	K	N		P. 41
> 15.600	Phantom	HSS-E	ISO 10898	90°	P	M	K	N		P. 41
> 15.604	Phantom	HSS-E	ISO 10898	90°	P	M	K	N		P. 42
> 19.120	INTERNATIONAL TOOLS	HSS	DIN 338	ECO	P		K	N	 	P. 42
> 19.124	INTERNATIONAL TOOLS	HSS	DIN 338	ECO PRO	P		K	N	 	P. 42
> 19.127	INTERNATIONAL TOOLS	HSS	DIN 338	ECO	P		K	N	 	P. 43
> 19.130	INTERNATIONAL TOOLS	HSS	DIN 338	ECO	P		K	N	 	P. 43
> 19.134	INTERNATIONAL TOOLS	HSS	DIN 338	ECO PRO	P		K	N	 	P. 43
> 19.135	INTERNATIONAL TOOLS	HSS			P	M	K	N	 	P. 44
> 19.136	INTERNATIONAL TOOLS	HSS	DIN 338	ECO PRO	P	M	K	N	 	P. 44

> 19.137	Phantom	HSS		P M K N			P. 44
> 19.138	Phantom	HSS		P M K N			P. 45
> 19.139	Phantom	HSS		P M K N			P. 45
> 19.140	Phantom	HSS-E		P M K N			P. 46
> 19.141	Phantom	HSS-E		P M K N			P. 46
> 19.142	Phantom	HSS-E		P M K N			P. 46
> 19.144	INTERNATIONAL TOOLS	HSS	DIN 338	ECO P K			P. 47
> 19.145	Phantom	HSS	DIN 338	P M K N			P. 47
> 19.146	Phantom	HSS	DIN 338	P M K N			P. 47
> 19.147	Phantom	HSS	DIN 338		P M K N		P. 48
> 19.149	INTERNATIONAL TOOLS	HSS-E	DIN 338	ECO PRO P M K N			P. 48
> 19.150	Phantom	HSS-E	DIN 338	P M K N			P. 48
> 19.152	Phantom	HSS-E	DIN 338		P M K N		P. 49
> 19.176	Phantom	HSS-E	DIN 338	INOX P M S			P. 49
> 19.374	Phantom	HM	Z=2				P. 49
> 19.376	Phantom	HM	Z=4				P. 50
> 21.140	INTERNATIONAL TOOLS	M	DIN 352	ECO P M K N			P. 51
> 21.145	Phantom	M	DIN 352	P M K N			P. 51

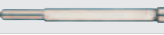
> 21.250	Phantom	MF	DIN 2181	P M K N			P. 52
> 21.405	Phantom	BSP G	DIN 5157	P M K N			P. 52
> 22.100	INTERNATIONAL TOOLS	M	C6,3 1/4"	P K N			P. 53
> 22.190	INTERNATIONAL TOOLS	M	DIN 352	P K N			P. 53
> 22.191	INTERNATIONAL TOOLS	M	DIN 371	P K N			P. 53
> 22.192	INTERNATIONAL TOOLS	M	DIN 376	P K N			P. 54
> 22.195	INTERNATIONAL TOOLS	M	DIN 371	P K N			P. 54
> 22.196	INTERNATIONAL TOOLS	M	DIN 376	P K N			P. 54
> 22.197	INTERNATIONAL TOOLS	M	DIN 371	P M K N			P. 55
> 22.198	INTERNATIONAL TOOLS	M	DIN 376	P M K N			P. 55
> 22.200	Phantom	M	DIN 371	P M K N S			P. 56
> 22.201	Phantom	M	DIN 376	P M K N S			P. 56
> 22.205	Phantom	M	ISO 529	P K N			P. 57
> 22.350	Phantom	M	NORM	P M K N S			P. 57
> 22.351	Phantom	M	NORM	P M K N S			P. 57
> 22.595	INTERNATIONAL TOOLS	M	DIN 371	P M			P. 58
> 22.596	INTERNATIONAL TOOLS	M	DIN 376	P M			P. 58
> 22.600	Phantom	M	DIN 371	P M			P. 58
> 22.601	Phantom	M	DIN 376	P M			P. 59
> 23.291	INTERNATIONAL TOOLS	M	DIN 371	P K N			P. 59
> 23.292	INTERNATIONAL TOOLS	M	DIN 376	P K N			P. 59
> 23.295	INTERNATIONAL TOOLS	M	DIN 371	P K N			P. 60
> 23.296	INTERNATIONAL TOOLS	M	DIN 376	P K N			P. 60
> 23.300	Phantom	M	DIN 371	P M K N S			P. 60
> 23.301	Phantom	M	DIN 376	P M K N S			P. 61
> 23.450	Phantom	M	DIN 371	P M S			P. 61
> 23.451	Phantom	M	DIN 376	P M S			P. 61
> 23.615	INTERNATIONAL TOOLS	MF	DIN 374	P K N			P. 62
> 23.620	Phantom	MF	DIN 374	P M K N S			P. 62
> 23.835	INTERNATIONAL TOOLS	MF	DIN 374	P K N			P. 63
> 23.840	Phantom	MF	DIN 374	P M K N S			P. 63
> 25.095	INTERNATIONAL TOOLS	BSP G	DIN 5156	P K N			P. 64

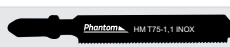
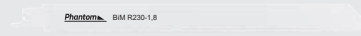
> 25.097	Phantom	BSP G	DIN 5156		P	M	K	N	S		P. 64
> 25.100	Phantom	BSP G	DIN 5156		P		K	N			P. 64
> 27.100	INTERNATIONAL TOOLS	M	DIN EN 22568		P		K	N			P. 65
> 27.120	Phantom	M	DIN EN 22568		P	M		N			P. 65
> 27.200	INTERNATIONAL TOOLS	MF	DIN EN 22568		P		K	N			P. 65
> 27.220	Phantom	MF	DIN EN 22568		P	M		N			P. 66
> 27.500	INTERNATIONAL TOOLS	BSP G	DIN EN 24231		P		K	N			P. 66
> 27.520	Phantom	BSP G	DIN EN 24231		P	M		N			P. 67
> 27.700	INTERNATIONAL TOOLS	M	DIN 382		P		K	N			P. 67
> 27.750	INTERNATIONAL TOOLS	MF	DIN 382		P		K	N			P. 67
> 27.900	INTERNATIONAL TOOLS	BSP G	DIN 382		P		K	N			P. 68
> 28.870	Phantom	M	Phan- Coil								P. 68
> 28.880	Phantom	M	Phan- Coil								P. 69
> 29.100	INTERNATIONAL TOOLS										P. 69
> 29.110	INTERNATIONAL TOOLS										P. 69
> 29.120	INTERNATIONAL TOOLS										P. 70
> 29.130	INTERNATIONAL TOOLS										P. 70
> 29.170	INTERNATIONAL TOOLS										P. 70
> 29.180	INTERNATIONAL TOOLS										P. 71
> 29.185	INTERNATIONAL TOOLS										P. 71

> 29.190	INTERNATIONAL TOOLS					P. 71
> 29.195	INTERNATIONAL TOOLS					P. 72
> 29.250	Phantom					P. 72
> 29.260	Phantom					P. 72
> 29.300	INTERNATIONAL TOOLS					P. 73
> 41.410	INTERNATIONAL TOOLS	A	Ø3	Ø6		P. 74
> 41.420	INTERNATIONAL TOOLS	B	Ø3	Ø6		P. 74
> 41.430	INTERNATIONAL TOOLS	C	Ø3	Ø6		P. 74
> 41.440	INTERNATIONAL TOOLS	D	Ø3	Ø6		P. 74
> 41.450	INTERNATIONAL TOOLS	E	Ø3	Ø6		P. 75
> 41.460	INTERNATIONAL TOOLS	F	Ø3	Ø6		P. 75
> 41.470	INTERNATIONAL TOOLS	G	Ø3	Ø6		P. 75
> 41.480	INTERNATIONAL TOOLS	H	Ø3	Ø6		P. 75
> 41.486	INTERNATIONAL TOOLS	L	Ø3	Ø6		P. 76
> 41.488	INTERNATIONAL TOOLS	M	Ø3	Ø6		P. 76
> 41.510	Phantom	A	Ø6			P. 77
> 41.511	Phantom	A	Ø6	TiAlN		P. 77
> 41.513	Phantom	A	Ø3			P. 77
> 41.518	Phantom	A	Ø8			P. 77
> 41.520	Phantom	B	Ø6			P. 78
> 41.521	Phantom	B	Ø6	TiAlN		P. 78
> 41.523	Phantom	B	Ø3			P. 78
> 41.528	Phantom	B	Ø8			P. 79
> 41.529	Phantom	B	Ø6			P. 79
> 41.530	Phantom	C	Ø6			P. 79
> 41.531	Phantom	C	Ø6	TiAlN		P. 80
> 41.533	Phantom	C	Ø3			P. 80
> 41.538	Phantom	C	Ø8			P. 80
> 41.539	Phantom	C	Ø6			P. 80
> 41.540	Phantom	D	Ø6			P. 81
> 41.543	Phantom	D	Ø3			P. 81

> 41.548	Phantom	D	Ø8				P. 81
> 41.549	Phantom	D	Ø6				P. 81
> 41.550	Phantom	E	Ø6				P. 82
> 41.553	Phantom	E	Ø3				P. 82
> 41.559	Phantom	E	Ø6				P. 82
> 41.560	Phantom	F	Ø6				P. 83
> 41.561	Phantom	F	Ø6	TiAIN			P. 83
> 41.563	Phantom	F	Ø3				P. 83
> 41.568	Phantom	F	Ø8				P. 84
> 41.569	Phantom	F	Ø6				P. 84
> 41.570	Phantom	G	Ø6				P. 84
> 41.573	Phantom	G	Ø3				P. 85
> 41.578	Phantom	G	Ø8				P. 85
> 41.579	Phantom	G	Ø6				P. 85
> 41.580	Phantom	H	Ø6				P. 85
> 41.583	Phantom	H	Ø3				P. 86
> 41.588	Phantom	H	Ø8				P. 86
> 41.620	Phantom	L	Ø6				P. 86
> 41.623	Phantom	L	Ø3				P. 86
> 41.628	Phantom	L	Ø8				P. 87
> 41.629	Phantom	L	Ø6				P. 87
> 41.630	Phantom	M	Ø6				P. 87
> 41.633	Phantom	M	Ø3				P. 87
> 42.500	Phantom	HSS-E		90°	P K N		P. 88
> 42.533	INTERNATIONAL TOOLS	HSS		90°	P K N		P. 88
> 42.535	INTERNATIONAL TOOLS	HSS		90°	P K N		P. 88
> 42.536	INTERNATIONAL TOOLS	HSS		90°	P M K N		P. 89
> 42.543	INTERNATIONAL TOOLS	HSS		90°	P K N		P. 89
> 42.547	Phantom	HSS-E		90°	P M K N	 NEW	P. 89
> 42.548	Phantom	HSS-E		90°	P M K N S	 NEW	P. 90
> 42.558	Phantom	HSS-E		90°	P M K N S	 NEW	P. 90
> 42.582	Phantom	HSS-E 8%		90°	P M K N S H	 NEW	P. 91
> 44.100	Phantom	HSS	OX.		P M K N		P. 92

> 44.102	Phantom	HSS	NIT.	P M K N			P. 92
> 44.130	Phantom	HSS	NIT.	P M K N			P. 92
> 44.134	Phantom	HSS	TiAIN	P M K N			P. 93
> 44.200	Phantom	HSS		P N			P. 93
> 46.100	SHAVIV						P. 94
> 46.120	SHAVIV	B					P. 94
> 46.300	SHAVIV	E					P. 95
> 49.140	INTERNATIONAL TOOLS	VHM SC	Ø6				P. 96
> 49.150	Phantom	VHM SC	Ø6				P. 96
> 49.240	INTERNATIONAL TOOLS	HSS	 90°	P K N			P. 96
> 49.242	INTERNATIONAL TOOLS	HSS	 90°	P K N			P. 97
> 49.244	INTERNATIONAL TOOLS	HSS	 90°	P M K N			P. 97
> 49.248	INTERNATIONAL TOOLS	HSS	 90°	P K N			P. 97
> 49.263	Phantom	HSS-E	 90°	P M K N		 NEW	P. 98
> 49.264	Phantom	HSS-E	 90°	P M K N S		 NEW	P. 98
> 49.266	Phantom	HSS-E	 90°	P M K N S		 NEW	P. 98
> 49.413	Phantom	HSS	NIT.	P M K N			P. 99
> 49.414	Phantom	HSS	TiAIN	P M K N			P. 99
> 51.110	Phantom	HSS	DIN 206-B H7	P K N			P. 100
> 51.320	Phantom	HSS-E	DIN 212 B/D H7	P M K N S			P. 100
> 51.350	Phantom	HSS-E	DIN 212 B/D x0,01	P M K N S			P. 101
> 51.520	Phantom	HSS-E	DIN 208-B H7	P M K N S			P. 101
> 61.090	INTERNATIONAL TOOLS	BIM 8% Co	ECO PRO	P M K N			P. 103

> 61.105	Phantom	BIM 8% Co		P M K N			P. 103
> 61.110	Phantom	BIM 8% Co		P M K N			P. 104
> 61.135	INTERNATIONAL TOOLS	ECO PRO					P. 104
> 61.137	INTERNATIONAL TOOLS	ECO PRO					P. 104
> 61.140	Phantom						P. 105
> 61.142	Phantom						P. 105
> 61.145	INTERNATIONAL TOOLS	ECO PRO					P. 105
> 61.147	INTERNATIONAL TOOLS	ECO PRO					P. 105
> 61.148	INTERNATIONAL TOOLS	ECO PRO					P. 106
> 61.150	Phantom						P. 106
> 61.170	Phantom						P. 106
> 61.180	Phantom						P. 106
> 61.630	Phantom	HM-TIP 0,5-5 mm		P M K N			P. 107
> 61.670	Phantom	HM-TIP 0,5-12 mm		P M K N			P. 107
> 61.680	Phantom	HM-TIP 0,5-12 mm		P M K N			P. 108
> 62.100	Phantom	HSS-EX 0,5-30 mm		P K N			P. 108
> 62.122	Phantom	HSS-EX 0,5-30 mm	NIT.	P M K N			P. 109
> 62.150	Phantom	HSS-EX 0,5-55 mm		P K N			P. 109
> 62.162	Phantom	HSS-EX 0,5-55 mm	NIT.	P M K N			P. 110
> 62.170	Phantom	HSS-EX 0,5-80 mm		P K N			NEW P. 110
> 62.180	Phantom	HSS-EX 0,5-110 mm		P K N			P. 111
> 62.200	Phantom	HM-TIP 0,5-40 mm		P M K N	H		P. 111
> 62.250	Phantom	HSS-EX 0,5-40 mm	Ø18 FEIN QUICKIN	P M K N			P. 112
> 62.300	Phantom						P. 113
> 62.310	Phantom	DIN 228-B WELDON	Ø19 WELDON	Ø32 WELDON			NEW P. 114
> 62.320	Phantom	DIN 228-B WELDON	Ø19 WELDON	Ø32 WELDON			NEW P. 114
> 62.322	Phantom	DIN 228-B WELDON	Ø19 WELDON				NEW P. 114
> 62.330	Phantom	Ø19 WELDON					NEW P. 115
> 62.340	Phantom	Ø18 WELDON	Ø32 WELDON	Ø18 FEIN QUICKIN			NEW P. 115
> 62.350	Phantom						P. 115
> 63.210	Phantom	HSS +GF+ BW		P M K N			P. 116
> 63.400	Phantom	HSS OX. C + BW		P K N			P. 117
> 63.401	Phantom	HSS TiN C + BW		P K N			P. 117
> 63.420	Phantom	HSS-E OX. C + BW		P M K N			P. 117
> 63.424	Phantom	HSS-E TiAIN C + BW		P M K N			P. 118

1 SC	> 64.150	Phantom	BIM HSS	5% Co	300mm 12"		P. 118
	> 64.460	Phantom	HSS	300mm 12"			P. 118
	> 64.500	Phantom					P. 119
	> 64.600	Phantom					P. 120
1 HSS(+E)	> 66.450	Phantom	BIM 8% Co	 λ α 0°			P. 121
	> 66.460	Phantom	BIM 8% Co	 λ α 10°			P. 121
	> 66.580	Phantom	BIM 10% Co	 λ α 15°			P. 122
	> 66.700	Phantom	BIM 8% Co	 λ α 5°			P. 122
2	> 69.090	INTERNATIONAL TOOLS	BIM 8% Co				P. 123
	> 69.092	INTERNATIONAL TOOLS	BIM 8% Co				P. 123
3 SC	> 69.111	Phantom	BIM 8% Co				P. 123
	> 69.112	Phantom	BIM 8% Co				P. 124
3 HSS-E	> 69.114	Phantom	BIM 8% Co				P. 124
	> 69.116	Phantom	BIM 8% Co				P. 125
4	> 69.210	Phantom	HSS-EX	 65-30 mm			P. 125
	> 81.180	Phantom					P. 126
	> 81.181	Phantom					P. 126
5	> 81.200	Phantom	TYPE A				P. 126
	> 81.700	INTERNATIONAL TOOLS					P. 127
	> 81.710	INTERNATIONAL TOOLS					P. 127
6	> 81.900		DIN 1814				P. 127
	> 81.905		DIN 1814				P. 128
	> 81.910						P. 128
	> 81.930						P. 128
7	> 84.100	INTERNATIONAL TOOLS		DIN 2185			P. 129
	> 84.110	INTERNATIONAL TOOLS		DIN 2187			P. 129
	> 84.170	INTERNATIONAL TOOLS	B		DIN 238		P. 129
8	> 84.872	Phantom	DIN 172-A	n6	F7		P. 130
ETC.	> 84.873	Phantom	DIN 172-A	n6	F7		P. 130
9	> 84.874	Phantom	DIN 172-A	n6	F7		P. 130

> 84.879	Phantom	DIN 179-A	n6	F7		 P. 131
> 84.880	Phantom	DIN 179-A	n6	F7		 P. 131
> 84.881	Phantom	DIN 179-A	n6	F7		 P. 131
> 88.152	INTERNATIONAL TOOLS					 P. 132
> 88.440	TORAX					 P. 132
> 88.900	TORAX					 P. 133
> 88.910	TORAX					 P. 133
> 88.920	TORAX					 P. 133
> 88.928	TORAX					 P. 134
> 88.940	TORAX					 P. 134
> 90.105	Phantom	UNI 	P M K N S			 P. 135
> 90.110	Phantom	UNI	P M K N S			 P. 135
> 90.130	Phantom	INOX	P M K N S			 P. 135
> 90.140	Phantom	UNI 	P M K N S			 P. 136
> 90.145	Phantom	UNI	P M K N S			 P. 136
> 90.150	Phantom	INOX	P M K N S			 P. 136
> 90.170	Phantom	UNI	P M K N S			 P. 136
> 90.180	Phantom	UNI 	P M K N S			 P. 137
> 90.210	Phantom	UNI	P M K N S			 P. 137

**> 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

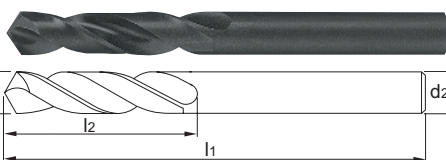


P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D
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Ref.	d1	d2	l1	l2	€
11.110.0100	1	1	26	6	0,59
11.110.0150	1.5	1.5	32	9	0,59
11.110.0200	2	2	38	12	0,47
11.110.0250	2.5	2.5	43	14	0,55
11.110.0300	3	3	46	16	0,94
11.110.0320	3.2	3.2	49	18	1,13
11.110.0330	3.3	3.3	49	18	1,13
11.110.0350	3.5	3.5	52	20	1,13
11.110.0400	4	4	55	22	1,17
11.110.0410	4.1	4.1	55	22	1,37
11.110.0420	4.2	4.2	55	22	1,37

Ref.	d1	d2	l1	l2	€
11.110.0450	4.5	4.5	58	24	1,37
11.110.0490	4.9	4.9	62	26	1,42
11.110.0500	5	5	62	26	1,42
11.110.0510	5.1	5.1	62	26	1,74
11.110.0520	5.2	5.2	62	26	1,74
11.110.0550	5.5	5.5	66	28	1,74
11.110.0580	5.8	5.8	66	28	2,00
11.110.0600	6	6	66	28	2,12
11.110.0650	6.5	6.5	70	31	2,26
11.110.0700	7	7	74	34	2,71
11.110.0750	7.5	7.5	74	34	3,18

**> 11.120 INTERNATIONAL TOOLS**

NL ECO HSS Spiraalboor 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 1/4" (6,35 mm) Hexa-Bitaufnahme
EN ECO HSS Twist drill 1/4" (6,35 mm) hexagonal shank

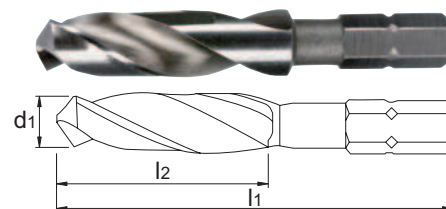


P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	45-50 E	35-40 G	25-40 D	22-28 D
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Ref.	d1	l1	l2	€
11.120.0200	2	34	12	4,21
11.120.0250	2.5	36	14	4,21
11.120.0300	3	38	16	4,21
11.120.0330	3.3	40	18	4,21
11.120.0350	3.5	40	18	4,21
11.120.0400	4	44	20	4,35
11.120.0420	4.2	45	20	4,35

Ref.	d1	l1	l2	€
11.120.0450	4.5	46	24	4,44
11.120.0500	5	50	26	4,44
11.120.0550	5.5	50	26	4,44
11.120.0600	6	50	26	4,44
11.120.0650	6.5	50	30	4,44
11.120.0680	6.8	50	30	4,44
11.120.0700	7	50	30	4,44

**> 11.130 Phantom**

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

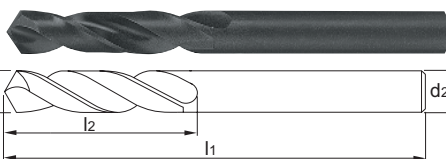


P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D
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Ref.	d1	d2	l1	l2	€
11.130.0100	1	1	26	6	2,23
11.130.0110	1.1	1.1	28	7	2,62
11.130.0120	1.2	1.2	30	8	2,62
11.130.0130	1.3	1.3	30	8	2,62
11.130.0140	1.4	1.4	32	9	2,62
11.130.0150	1.5	1.5	32	9	2,27
11.130.0160	1.6	1.6	34	10	2,62
11.130.0170	1.7	1.7	34	10	2,62
11.130.0180	1.8	1.8	36	11	2,62
11.130.0190	1.9	1.9	36	11	2,62

Ref.	d1	d2	l1	l2	€
11.130.0200	2	2	38	12	1,96
11.130.0210	2.1	2.1	38	12	1,69
11.130.0220	2.2	2.2	40	13	1,62
11.130.0230	2.3	2.3	40	13	1,62
11.130.0240	2.4	2.4	43	14	1,62
11.130.0250	2.5	2.5	43	14	1,47
11.130.0260	2.6	2.6	43	14	1,83
11.130.0270	2.7	2.7	46	16	1,83
11.130.0280	2.8	2.8	46	16	1,83
11.130.0290	2.9	2.9	46	16	1,83



Ref.	d1	d2	l1	l2	€
11.130.0300	3	3	46	16	1,84
11.130.0310	3.1	3.1	49	18	1,84
11.130.0320	3.2	3.2	49	18	1,84
11.130.0330	3.3	3.3	49	18	1,96
11.130.0340	3.4	3.4	52	20	1,96
11.130.0350	3.5	3.5	52	20	1,96
11.130.0360	3.6	3.6	52	20	1,96
11.130.0370	3.7	3.7	52	20	1,96
11.130.0380	3.8	3.8	55	22	2,26
11.130.0390	3.9	3.9	55	22	2,26

> 11.130 Phantom

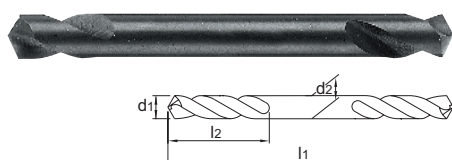
Ref.	d1	d2	l1	l2	€
11.130.0400	4	4	55	22	2,26
11.130.0410	4.1	4.1	55	22	2,43
11.130.0420	4.2	4.2	55	22	2,43
11.130.0430	4.3	4.3	58	24	2,53
11.130.0440	4.4	4.4	58	24	2,53
11.130.0450	4.5	4.5	58	24	2,66
11.130.0460	4.6	4.6	58	24	2,69
11.130.0470	4.7	4.7	58	24	2,69
11.130.0480	4.8	4.8	62	26	2,69
11.130.0490	4.9	4.9	62	26	2,69
11.130.0500	5	5	62	26	2,69
11.130.0510	5.1	5.1	62	26	2,69
11.130.0520	5.2	5.2	62	26	2,69
11.130.0530	5.3	5.3	62	26	3,06
11.130.0540	5.4	5.4	66	28	3,06
11.130.0550	5.5	5.5	66	28	3,06
11.130.0560	5.6	5.6	66	28	3,06
11.130.0570	5.7	5.7	66	28	3,06
11.130.0580	5.8	5.8	66	28	3,06
11.130.0590	5.9	5.9	66	28	3,06

Ref.	d1	d2	l1	l2	€
11.130.0600	6	6	66	28	3,50
11.130.0610	6.1	6.1	70	31	3,50
11.130.0620	6.2	6.2	70	31	3,50
11.130.0630	6.3	6.3	70	31	3,56
11.130.0640	6.4	6.4	70	31	3,56
11.130.0650	6.5	6.5	70	31	3,71
11.130.0660	6.6	6.6	70	31	3,71
11.130.0670	6.7	6.7	70	31	3,78
11.130.0680	6.8	6.8	74	34	4,05
11.130.0690	6.9	6.9	74	34	4,05
11.130.0700	7	7	74	34	4,17
11.130.0750	7.5	7.5	74	34	5,36
11.130.0780	7.8	7.8	79	37	5,59
11.130.0800	8	8	79	37	5,82
11.130.0850	8.5	8.5	79	37	6,73
11.130.0880	8.8	8.8	84	40	6,84
11.130.0900	9	9	84	40	6,73
11.130.0950	9.5	9.5	84	40	7,54
11.130.0980	9.8	9.8	89	43	7,96
11.130.1000	10	10	89	43	8,40

Ref.	d1	d2	l1	l2	€
11.130.1050	10.5	10.5	89	43	10,99
11.130.1100	11	11	95	47	11,79
11.130.1150	11.5	11.5	95	47	14,74
11.130.1200	12	12	102	51	17,72
11.130.1250	12.5	12.5	102	51	18,97
11.130.1300	13	13	102	51	20,51
11.130.1350	13.5	13.5	107	54	22,70
11.130.1400	14	14	107	54	24,28
11.130.1450	14.5	14.5	111	56	26,45
11.130.1500	15	15	111	56	28,40
11.130.1550	15.5	15.5	115	58	31,50
11.130.1600	16	16	115	58	32,15
11.130.1650	16.5	16.5	119	60	35,40
11.130.1700	17	17	119	60	37,40
11.130.1750	17.5	17.5	123	62	42,00
11.130.1800	18	18	123	62	43,25
11.130.1850	18.5	18.5	127	64	47,90
11.130.1900	19	19	127	64	49,15
11.130.1950	19.5	19.5	131	66	52,05
11.130.2000	20	20	131	66	57,90

> 11.145 Phantom

NL HSS Spiraalboor dubbelzijdig
FR Foret HSS double-pointe
ES Broca HSS de doble punta
DE HSS Spiralbohrer Doppelseitig
EN HSS Twist drill double ended



HSS	NORM	N	135°	≥2,5
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX >850 N/mm²	K 31 GG
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E

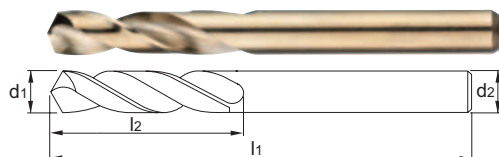
Ref.	d1	d2	l1	l2	€
11.145.0200	2	2	38	7.5	3,14
11.145.0210	2.1	2.1	38	7.5	3,92
11.145.0250	2.5	2.5	43	9.5	2,47
11.145.0300	3	3	46	10.6	2,48
11.145.0320	3.2	3.2	49	11.2	2,50
11.145.0330	3.3	3.3	49	11.2	2,50

Ref.	d1	d2	l1	l2	€
11.145.0350	3.5	3.5	52	12.5	2,56
11.145.0400	4	4	55	14	2,72
11.145.0410	4.1	4.1	55	14	2,80
11.145.0420	4.2	4.2	55	14	2,80
11.145.0450	4.5	4.5	58	15.5	3,21
11.145.0480	4.8	4.8	62	17	5,32

Ref.	d1	d2	l1	l2	€
11.145.0490	4.9	4.9	62	16	3,61
11.145.0500	5	5	62	17	3,47
11.145.0510	5.1	5.1	62	17	4,09
11.145.0520	5.2	5.2	62	17	4,19
11.145.0550	5.5	5.5	66	19	4,38
11.145.0600	6	6	66	19	4,68

> 11.150 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



HSS-E	DIN 1897	N	135°	>3	ECO PRO
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
28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C

Ref.	d1	d2	l1	l2	€
11.150.0100	1	1	26	6	1,77
11.150.0150	1.5	1.5	32	9	1,77
11.150.0200	2	2	38	12	1,58
11.150.0220	2.2	2.2	40	13	1,28
11.150.0250	2.5	2.5	43	14	1,28
11.150.0300	3	3	46	16	1,40
11.150.0310	3.1	3.1	49	18	1,45
11.150.0320	3.2	3.2	49	18	1,45
11.150.0330	3.3	3.3	49	18	1,58
11.150.0340	3.4	3.4	52	20	1,58
11.150.0350	3.5	3.5	52	20	1,58
11.150.0370	3.7	3.7	52	20	1,66
11.150.0380	3.8	3.8	55	22	1,76

Ref.	d1	d2	l1	l2	€
11.150.0400	4	4	55	22	1,76
11.150.0410	4.1	4.1	55	22	1,90
11.150.0420	4.2	4.2	55	22	1,90
11.150.0450	4.5	4.5	58	24	2,15
11.150.0470	4.7	4.7	58	24	2,44
11.150.0480	4.8	4.8	62	26	2,44
11.150.0490	4.9	4.9	62	26	2,44
11.150.0500	5	5	62	26	2,44
11.150.0520	5.2	5.2	62	26	2,69
11.150.0550	5.5	5.5	66	28	2,69
11.150.0600	6	6	66	28	2,95
11.150.0650	6.5	6.5	70	31	3,40
11.150.0680	6.8	6.8	74	34	3,94

Ref.	d1	d2	l1	l2	€
11.150.0700	7	7	74	34	3,94
11.150.0750	7.5	7.5	74	34	4,89
11.150.0800	8	8	79	37	5,56
11.150.0850	8.5	8.5	79	37	6,33
11.150.0900	9	9	84	40	7,06
11.150.0950	9.5	9.5	84	40	7,40
11.150.1000	10	10	89	43	8,03
11.150.1050	10.5	10.5	89	43	9,91
11.150.1100	11	11	95	47	11,55
11.150.1150	11.5	11.5	95	47	12,43
11.150.1200	12	12	102	51	15,65
11.150.1250	12.5	12.5	102	51	16,35
11.150.1300	13	13	102	51	17,70



> 11.160 Phantom

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

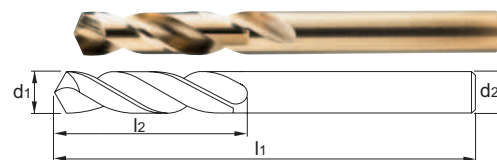


P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 CuAlFe
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28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C
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Ref.	d1	d2	l1	l2	€
11.160.0100	1	1	26	6	1,71
11.160.0120	1.2	1.2	30	8	1,95
11.160.0150	1.5	1.5	32	9	1,95
11.160.0160	1.6	1.6	34	10	1,95
11.160.0200	2	2	38	12	1,95
11.160.0210	2.1	2.1	38	12	1,95
11.160.0220	2.2	2.2	40	13	1,89
11.160.0230	2.3	2.3	40	13	1,89
11.160.0240	2.4	2.4	43	14	1,89
11.160.0250	2.5	2.5	43	14	1,89
11.160.0260	2.6	2.6	43	14	2,24
11.160.0270	2.7	2.7	46	16	2,24
11.160.0280	2.8	2.8	46	16	2,24
11.160.0290	2.9	2.9	46	16	2,24
11.160.0300	3	3	46	16	2,24
11.160.0310	3.1	3.1	49	18	2,54
11.160.0320	3.2	3.2	49	18	2,54
11.160.0330	3.3	3.3	49	18	2,54
11.160.0340	3.4	3.4	52	20	2,54
11.160.0350	3.5	3.5	52	20	2,60
11.160.0360	3.6	3.6	52	20	2,71
11.160.0370	3.7	3.7	52	20	2,71

Ref.	d1	d2	l1	l2	€
11.160.0380	3.8	3.8	55	22	3,13
11.160.0390	3.9	3.9	55	22	3,13
11.160.0400	4	4	55	22	3,13
11.160.0410	4.1	4.1	55	22	3,48
11.160.0420	4.2	4.2	55	22	3,30
11.160.0430	4.3	4.3	58	24	3,48
11.160.0440	4.4	4.4	58	24	3,48
11.160.0450	4.5	4.5	58	24	3,48
11.160.0460	4.6	4.6	58	24	3,54
11.160.0470	4.7	4.7	58	24	3,54
11.160.0480	4.8	4.8	62	26	3,54
11.160.0490	4.9	4.9	62	26	3,54
11.160.0500	5	5	62	26	3,36
11.160.0510	5.1	5.1	62	26	3,54
11.160.0520	5.2	5.2	62	26	3,54
11.160.0530	5.3	5.3	62	26	4,37
11.160.0540	5.4	5.4	66	28	4,37
11.160.0550	5.5	5.5	66	28	4,25
11.160.0560	5.6	5.6	66	28	4,48
11.160.0570	5.7	5.7	66	28	4,48
11.160.0580	5.8	5.8	66	28	4,54
11.160.0590	5.9	5.9	66	28	4,48



> 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

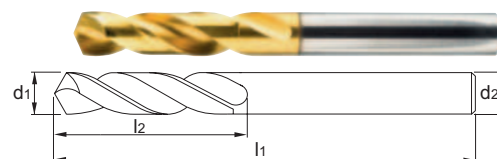


P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 CuAlFe
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32-40 E	35-40 E	25-32 E	12-20 D	15-20 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C
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Ref.	d1	d2	l1	l2	€
11.161.0100	1	1	26	6	4,48
11.161.0110	1.1	1.1	28	7	4,66
11.161.0120	1.2	1.2	30	8	4,66
11.161.0130	1.3	1.3	30	8	4,66
11.161.0140	1.4	1.4	32	9	4,66
11.161.0150	1.5	1.5	32	9	4,66
11.161.0160	1.6	1.6	34	10	4,66
11.161.0170	1.7	1.7	34	10	4,66
11.161.0180	1.8	1.8	36	11	4,66
11.161.0190	1.9	1.9	36	11	4,66
11.161.0200	2	2	38	12	4,66
11.161.0210	2.1	2.1	38	12	4,66
11.161.0220	2.2	2.2	40	13	4,54
11.161.0230	2.3	2.3	40	13	4,54
11.161.0240	2.4	2.4	43	14	4,54
11.161.0250	2.5	2.5	43	14	4,54
11.161.0260	2.6	2.6	43	14	4,96
11.161.0270	2.7	2.7	46	16	4,96
11.161.0280	2.8	2.8	46	16	4,96
11.161.0290	2.9	2.9	46	16	4,96
11.161.0300	3	3	46	16	4,96
11.161.0310	3.1	3.1	49	18	5,19

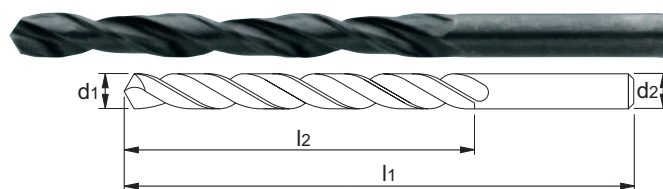
Ref.	d1	d2	l1	l2	€
11.161.0320	3.2	3.2	49	18	5,19
11.161.0330	3.3	3.3	49	18	5,19
11.161.0340	3.4	3.4	52	20	5,19
11.161.0350	3.5	3.5	52	20	5,25
11.161.0360	3.6	3.6	52	20	5,43
11.161.0370	3.7	3.7	52	20	5,43
11.161.0380	3.8	3.8	55	22	5,78
11.161.0390	3.9	3.9	55	22	5,78
11.161.0400	4	4	55	22	5,78
11.161.0410	4.1	4.1	55	22	6,25
11.161.0420	4.2	4.2	55	22	6,08
11.161.0430	4.3	4.3	58	24	6,67
11.161.0440	4.4	4.4	58	24	6,67
11.161.0450	4.5	4.5	58	24	6,67
11.161.0460	4.6	4.6	58	24	6,73
11.161.0470	4.7	4.7	58	24	6,73
11.161.0480	4.8	4.8	62	26	6,73
11.161.0490	4.9	4.9	62	26	6,73
11.161.0500	5	5	62	26	6,37
11.161.0510	5.1	5.1	62	26	6,73
11.161.0520	5.2	5.2	62	26	6,73
11.161.0530	5.3	5.3	62	26	7,61



Ref.	d1	d2	l1	l2	€
11.161.0550	5.5	5.5	66	28	7,43
11.161.0570	5.7	5.7	66	28	7,67
11.161.0580	5.8	5.8	66	28	7,73
11.161.0600	6	6	66	28	7,73
11.161.0620	6.2	6.2	70	31	8,14
11.161.0650	6.5	6.5	70	31	8,32
11.161.0680	6.8	6.8	74	34	8,97
11.161.0700	7	7	74	34	10,21
11.161.0750	7.5	7.5	74	34	10,97
11.161.0800	8	8	79	37	12,45
11.161.0850	8.5	8.5	79	37	14,57
11.161.0900	9	9	84	40	16,05
11.161.0950	9.5	9.5	84	40	17,34
11.161.1000	10	10	89	43	18,11
11.161.1050	10.5	10.5	89	43	19,53
11.161.1100	11	11	95	47	20,47
11.161.1150	11.5	11.5	95	47	23,83
11.161.1200	12	12	102	51	23,89
11.161.1250	12.5	12.5	102	51	26,70
11.161.1300	13	13	102	51	27,45

> 11.400 INTERNATIONAL TOOLS

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



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	2,51
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

Product comparator



NL Productvergelijker op phantom.eu
FR Comparateur de produits sur Phantom.eu
ES Comparador de productos en phantom.eu
DE Produktvergleich auf phantom.eu
EN Product comparator on phantom.eu

Watch me



www.phantom.eu

**> 11.403 Phantom**

NL HSS Spiraalboor Step-point, met drievlaks schacht 13 mm
FR Foret à pointe étagée HSS Step-point, à 3 méplats 13 mm
ES Broca HSS Step-point, con 3 chaflanes 13 mm
DE HSS Spiralbohrer Step-point, 3-Flächen-Schaft 13 mm
EN HSS Stub Drill Step-point, with 3 flat surfaces 13 mm

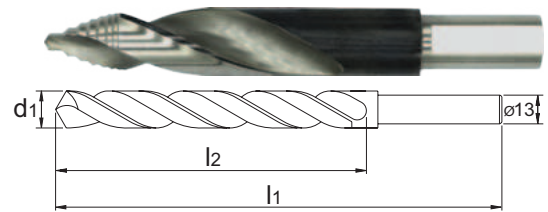


P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D

Ref.	d1	l1	l2	€
11.403.1350	13.5	107	61	32,35
11.403.1400	14	107	61	34,35
11.403.1450	14.5	111	65	35,25
11.403.1500	15	111	65	38,00
11.403.1550	15.5	115	69	39,00

Ref.	d1	l1	l2	€
11.403.1600	16	115	69	42,80
11.403.1650	16.5	119	73	71,25
11.403.1700	17	119	73	71,80
11.403.1750	17.5	123	77	75,85
11.403.1800	18	123	77	75,85

Ref.	d1	l1	l2	€
11.403.1850	18.5	127	81	76,75
11.403.1900	19	127	81	81,40
11.403.1950	19.5	131	85	83,40
11.403.2000	20	131	85	86,50

**NIEUW / NOUVEAU / NUEVO / NEU****> 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

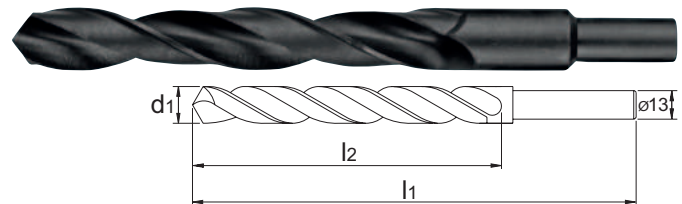


P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	K 32 GGG GTS-GTW
20-25 E	20-25 E	15-20 D	15-20 E	25-30 E

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

**> 11.414 INTERNATIONAL TOOLS**

NL ECO HSS Spiraalboor, schacht 13 mm
FR Foret HSS ECO, queue 13 mm
ES Broca HSS ECO, mango 13 mm
DE ECO HSS Spiralbohrer, Schaft 13 mm
EN ECO HSS Twist drill, shank 13 mm

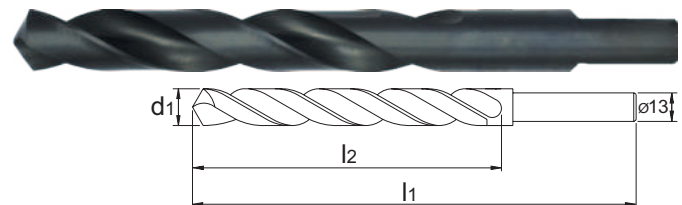


P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	K 32 GGG GTS-GTW
20-25 E	20-25 E	15-20 D	15-20 E	25-30 E

Ref.	d1	l1	l2	€
11.414.1350	13.5	160	108	12,46
11.414.1400	14	160	108	12,46
11.414.1450	14.5	169	114	14,64
11.414.1500	15	169	114	14,13
11.414.1550	15.5	178	120	15,76
11.414.1600	16	178	120	16,33
11.414.1650	16.5	184	125	19,53

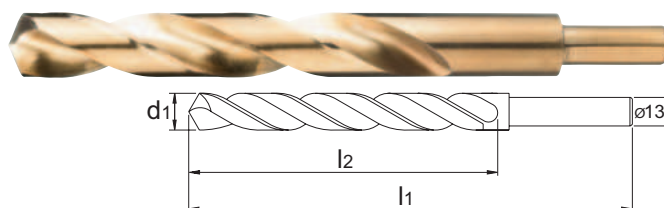
Ref.	d1	l1	l2	€
11.414.1700	17	184	125	19,53
11.414.1750	17.5	191	130	21,72
11.414.1800	18	191	130	21,72
11.414.1850	18.5	198	135	25,45
11.414.1900	19	198	135	22,15
11.414.1950	19.5	205	140	28,10
11.414.2000	20	205	140	28,10

Ref.	d1	l1	l2	€
11.414.2100	21	208	145	38,50
11.414.2200	22	208	150	40,50
11.414.2300	23	213	155	41,10
11.414.2400	24	222	160	52,00
11.414.2500	25	222	160	62,00

**NIEUW / NOUVEAU / NUEVO / NEU**

> 11.415 INTERNATIONAL TOOLS

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



HSS-E	N	Ø13					
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 51 Cu	N 52 CuAlFe
28-35	30-36	20-27	14-18	30-35	24-30	30-40	8-15

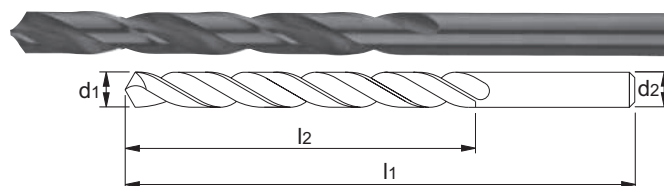
Ref.	d1	l1	l2	€
11.415.1350	13,5	160	108	26,65
11.415.1400	14	160	108	29,30
11.415.1450	14,5	169	114	32,45
11.415.1500	15	169	114	34,65
11.415.1550	15,5	178	120	36,85
11.415.1600	16	178	120	40,05
11.415.1650	16,5	184	125	44,20

Ref.	d1	l1	l2	€
11.415.1700	17	184	125	46,75
11.415.1750	17,5	191	130	50,85
11.415.1800	18	191	130	55,10
11.415.1850	18,5	198	135	58,85
11.415.1900	19	198	135	62,25
11.415.1950	19,5	205	140	66,45
11.415.2000	20	205	140	68,95

Ref.	d1	l1	l2	€
11.415.2100	21	208	145	75,45
11.415.2200	22	208	150	80,10
11.415.2300	23	213	155	87,00
11.415.2400	24	222	160	103,35
11.415.2500	25	222	160	114,65

> 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



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	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.	d1	d2	l1	l2	€
11.416.0100	1	1	34	12	0,25
11.416.0110	1.1	1.1	36	14	0,26
11.416.0120	1.2	1.2	38	16	0,26
11.416.0130	1.3	1.3	38	16	0,26
11.416.0140	1.4	1.4	40	18	0,26
11.416.0150	1.5	1.5	40	18	0,26
11.416.0160	1.6	1.6	43	20	0,31
11.416.0170	1.7	1.7	43	20	0,31
11.416.0180	1.8	1.8	46	22	0,31
11.416.0190	1.9	1.9	46	22	0,31
11.416.0200	2	2	49	24	0,32
11.416.0210	2.1	2.1	49	24	0,41
11.416.0220	2.2	2.2	53	27	0,41
11.416.0230	2.3	2.3	53	27	0,41
11.416.0240	2.4	2.4	57	30	0,41
11.416.0250	2.5	2.5	57	30	0,36
11.416.0260	2.6	2.6	57	30	0,58
11.416.0270	2.7	2.7	61	33	0,58
11.416.0280	2.8	2.8	61	33	0,58
11.416.0290	2.9	2.9	61	33	0,58
11.416.0300	3	3	61	33	0,55
11.416.0310	3.1	3.1	65	36	0,68
11.416.0320	3.2	3.2	65	36	0,67
11.416.0330	3.3	3.3	65	36	0,67
11.416.0340	3.4	3.4	70	39	0,67
11.416.0350	3.5	3.5	70	39	0,67
11.416.0360	3.6	3.6	70	39	0,75
11.416.0370	3.7	3.7	70	39	0,75
11.416.0380	3.8	3.8	75	43	0,75
11.416.0390	3.9	3.9	75	43	0,75
11.416.0400	4	4	75	43	0,75
11.416.0410	4.1	4.1	75	43	0,80
11.416.0420	4.2	4.2	75	43	0,80
11.416.0430	4.3	4.3	80	47	0,85
11.416.0440	4.4	4.4	80	47	0,85
11.416.0450	4.5	4.5	80	47	0,84
11.416.0460	4.6	4.6	80	47	0,94
11.416.0470	4.7	4.7	80	47	0,94
11.416.0480	4.8	4.8	86	52	0,93
11.416.0490	4.9	4.9	86	52	0,94
11.416.0500	5	5	86	52	0,93

Ref.	d1	d2	l1	l2	€
11.416.0510	5.1	5.1	86	52	1,09
11.416.0520	5.2	5.2	86	52	1,08
11.416.0530	5.3	5.3	86	52	1,09
11.416.0540	5.4	5.4	93	57	1,09
11.416.0550	5.5	5.5	93	57	1,08
11.416.0560	5.6	5.6	93	57	1,18
11.416.0570	5.7	5.7	93	57	1,18
11.416.0580	5.8	5.8	93	57	1,18
11.416.0590	5.9	5.9	93	57	1,18
11.416.0600	6	6	93	57	1,17
11.416.0610	6.1	6.1	101	63	1,36
11.416.0620	6.2	6.2	101	63	1,36
11.416.0630	6.3	6.3	101	63	1,36
11.416.0640	6.4	6.4	101	63	1,37
11.416.0650	6.5	6.5	101	63	1,36
11.416.0660	6.6	6.6	101	63	2,26
11.416.0670	6.7	6.7	101	63	1,60
11.416.0680	6.8	6.8	109	69	1,59
11.416.0690	6.9	6.9	109	69	2,26
11.416.0700	7	7	109	69	1,59
11.416.0710	7.1	7.1	109	69	1,88
11.416.0720	7.2	7.2	109	69	1,88
11.416.0730	7.3	7.3	109	69	1,88
11.416.0740	7.4	7.4	109	69	2,73
11.416.0750	7.5	7.5	109	69	1,86
11.416.0760	7.6	7.6	117	75	3,29
11.416.0770	7.7	7.7	117	75	3,29
11.416.0780	7.8	7.8	117	75	2,12
11.416.0790	7.9	7.9	117	75	2,12
11.416.0800	8	8	117	75	2,10
11.416.0810	8.1	8.1	117	75	3,58
11.416.0820	8.2	8.2	117	75	2,33
11.416.0830	8.3	8.3	117	75	2,35
11.416.0840	8.4	8.4	117	75	2,35
11.416.0850	8.5	8.5	117	75	2,33
11.416.0860	8.6	8.6	125	81	4,14
11.416.0870	8.7	8.7	125	81	2,82
11.416.0880	8.8	8.8	125	81	4,14
11.416.0890	8.9	8.9	125	81	2,82
11.416.0900	9	9	125	81	2,80
11.416.0910	9.1	9.1	125	81	4,61

Ref.	d1	d2	l1	l2	€
11.416.0920	9.2	9.2	125	81	4,61
11.416.0930	9.3	9.3	125	81	4,61
11.416.0940	9.4	9.4	125	81	4,61
11.416.0950	9.5	9.5	125	81	2,98
11.416.0960	9.6	9.6	133	87	5,27
11.416.0970	9.7	9.7	133	87	5,27
11.416.0980	9.8	9.8	133	87	5,27
11.416.0990	9.9	9.9	133	87	5,27
11.416.1000	10	10	133	87	3,26
11.416.1010	10.1	10.1	133	87	5,65
11.416.1020	10.2	10.2	133	87	3,73
11.416.1030	10.3	10.3	133	87	5,65
11.416.1040	10.4	10.4	133	87	5,65
11.416.1050	10.5	10.5	133	87	3,73
11.416.1060	10.6	10.6	133	87	7,53
11.416.1070	10.7	10.7	142	94	7,53
11.416.1080	10.8	10.8	142	94	7,53
11.416.1090	10.9	10.9	142	94	7,53
11.416.1100	11	11	142	94	4,20
11.416.1110	11.1	11.1	142	94	7,53
11.416.1120	11.2	11.2	142	94	7,53
11.416.1130	11.3	11.3	142	94	7,53
11.416.1140	11.4	11.4	142	94	7,53
11.416.1150	11.5	11.5	142	94	4,38
11.416.1160	11.6	11.6	142	94	8,28
11.416.1170	11.7	11.7	142	94	8,28
11.416.1180	11.8	11.8	142	94	8,28
11.416.1190	11.9	11.9	151	101	8,28
11.416.1200	12	12	151	101	4,94
11.416.1210	12.1	12.1	151	101	8,94
11.416.1220	12.2	12.2	151	101	8,94
11.416.1230	12.3	12.3	151	101	8,94
11.416.1240	12.4	12.4	151	101	8,94
11.416.1250	12.5	12.5	151	101	5,41
11.416.1260	12.6	12.6	151	101	9,32
11.416.1270	12.7	12.7	151	101	9,32
11.416.1280	12.8	12.8	151	101	9,32
11.416.1290	12.9	12.9	151	101	9,32
11.416.1300	13	13	151	101	5,59

**> 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



Ref.	d1	d2	I1	I2	€
11.420.0100	1	1	34	12	0,39
11.420.0110	1.1	1.1	36	14	0,39
11.420.0120	1.2	1.2	38	16	0,39
11.420.0130	1.3	1.3	38	16	0,39
11.420.0140	1.4	1.4	40	18	0,39
11.420.0150	1.5	1.5	40	18	0,39
11.420.0160	1.6	1.6	43	20	0,44
11.420.0170	1.7	1.7	43	20	0,44
11.420.0180	1.8	1.8	46	22	0,44
11.420.0190	1.9	1.9	46	22	0,44
11.420.0200	2	2	49	24	0,47
11.420.0210	2.1	2.1	49	24	0,54
11.420.0220	2.2	2.2	53	27	0,54
11.420.0230	2.3	2.3	53	27	0,54
11.420.0240	2.4	2.4	57	30	0,54
11.420.0250	2.5	2.5	57	30	0,54
11.420.0260	2.6	2.6	57	30	0,75
11.420.0270	2.7	2.7	61	33	0,75
11.420.0280	2.8	2.8	61	33	0,75
11.420.0290	2.9	2.9	61	33	0,75
11.420.0300	3	3	61	33	0,75
11.420.0310	3.1	3.1	65	36	0,83
11.420.0320	3.2	3.2	65	36	0,83
11.420.0330	3.3	3.3	65	36	0,83
11.420.0340	3.4	3.4	70	39	0,83
11.420.0350	3.5	3.5	70	39	0,83
11.420.0360	3.6	3.6	70	39	0,93
11.420.0370	3.7	3.7	70	39	0,93
11.420.0380	3.8	3.8	75	43	0,93
11.420.0390	3.9	3.9	75	43	0,93
11.420.0400	4	4	75	43	0,93
11.420.0410	4.1	4.1	75	43	1,06
11.420.0420	4.2	4.2	75	43	1,06
11.420.0430	4.3	4.3	80	47	1,19
11.420.0440	4.4	4.4	80	47	1,19
11.420.0450	4.5	4.5	80	47	1,19
11.420.0460	4.6	4.6	80	47	1,33
11.420.0470	4.7	4.7	80	47	1,33
11.420.0480	4.8	4.8	86	52	1,33
11.420.0490	4.9	4.9	86	52	1,33
11.420.0500	5	5	86	52	1,33

Ref.	d1	d2	I1	I2	€
11.420.0510	5.1	5.1	86	52	1,78
11.420.0520	5.2	5.2	86	52	1,78
11.420.0530	5.3	5.3	86	52	1,78
11.420.0540	5.4	5.4	93	57	1,78
11.420.0550	5.5	5.5	93	57	1,78
11.420.0560	5.6	5.6	93	57	2,05
11.420.0570	5.7	5.7	93	57	2,05
11.420.0580	5.8	5.8	93	57	2,05
11.420.0590	5.9	5.9	93	57	2,05
11.420.0600	6	6	93	57	2,05
11.420.0610	6.1	6.1	101	63	2,49
11.420.0620	6.2	6.2	101	63	2,49
11.420.0630	6.3	6.3	101	63	2,49
11.420.0640	6.4	6.4	101	63	2,51
11.420.0650	6.5	6.5	101	63	2,51
11.420.0660	6.6	6.6	101	63	2,95
11.420.0670	6.7	6.7	101	63	2,95
11.420.0680	6.8	6.8	109	69	2,95
11.420.0690	6.9	6.9	109	69	2,95
11.420.0700	7	7	109	69	2,95
11.420.0710	7.1	7.1	109	69	3,32
11.420.0720	7.2	7.2	109	69	3,32
11.420.0730	7.3	7.3	109	69	3,32
11.420.0740	7.4	7.4	109	69	3,32
11.420.0750	7.5	7.5	109	69	3,32
11.420.0760	7.6	7.6	117	75	3,94
11.420.0770	7.7	7.7	117	75	3,94
11.420.0780	7.8	7.8	117	75	3,94
11.420.0790	7.9	7.9	117	75	3,94
11.420.0800	8	8	117	75	3,94
11.420.0810	8.1	8.1	117	75	4,30
11.420.0820	8.2	8.2	117	75	4,30
11.420.0830	8.3	8.3	117	75	4,30
11.420.0840	8.4	8.4	117	75	4,30
11.420.0850	8.5	8.5	117	75	4,30
11.420.0860	8.6	8.6	125	81	5,08
11.420.0870	8.7	8.7	125	81	5,08
11.420.0880	8.8	8.8	125	81	5,08
11.420.0890	8.9	8.9	125	81	5,08
11.420.0900	9	9	125	81	5,08
11.420.0910	9.1	9.1	125	81	5,59

Ref.	d1	d2	I1	I2	€
11.420.0920	9.2	9.2	125	81	5,59
11.420.0930	9.3	9.3	125	81	5,59
11.420.0940	9.4	9.4	125	81	5,59
11.420.0950	9.5	9.5	125	81	5,59
11.420.0960	9.6	9.6	133	87	6,37
11.420.0970	9.7	9.7	133	87	6,37
11.420.0980	9.8	9.8	133	87	6,37
11.420.0990	9.9	9.9	133	87	6,37
11.420.1000	10	10	133	87	6,37
11.420.1010	10.1	10.1	133	87	6,89
11.420.1020	10.2	10.2	133	87	6,89
11.420.1030	10.3	10.3	133	87	6,89
11.420.1040	10.4	10.4	133	87	6,89
11.420.1050	10.5	10.5	133	87	6,89
11.420.1060	10.6	10.6	133	87	8,21
11.420.1070	10.7	10.7	142	94	8,21
11.420.1080	10.8	10.8	142	94	8,21
11.420.1090	10.9	10.9	142	94	8,21
11.420.1100	11	11	142	94	8,21
11.420.1110	11.1	11.1	142	94	8,70
11.420.1120	11.2	11.2	142	94	8,81
11.420.1130	11.3	11.3	142	94	8,81
11.420.1140	11.4	11.4	142	94	8,81
11.420.1150	11.5	11.5	142	94	8,81
11.420.1160	11.6	11.6	142	94	10,10
11.420.1170	11.7	11.7	142	94	10,10
11.420.1180	11.8	11.8	142	94	10,10
11.420.1190	11.9	11.9	151	101	10,10
11.420.1200	12	12	151	101	10,10
11.420.1210	12.1	12.1	151	101	10,67
11.420.1220	12.2	12.2	151	101	10,67
11.420.1230	12.3	12.3	151	101	10,67
11.420.1240	12.4	12.4	151	101	10,67
11.420.1250	12.5	12.5	151	101	10,67
11.420.1260	12.6	12.6	151	101	11,60
11.420.1270	12.7	12.7	151	101	11,60
11.420.1280	12.8	12.8	151	101	11,60
11.420.1290	12.9	12.9	151	101	11,60
11.420.1300	13	13	151	101	11,60

> 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



Ref.	d1	d2	I1	I2	€
11.423.0100	1	1	34	12	0,29
11.423.0150	1.5	1.5	40	18	0,29
11.423.0200	2	2	49	24	0,36
11.423.0250	2.5	2.5	57	30	0,44
11.423.0300	3	3	61	33	0,65
11.423.0310	3.1	3.1	65	36	0,75
11.423.0320	3.2	3.2	65	36	0,75
11.423.0330	3.3	3.3	65	36	0,75

Ref.	d1	d2	I1	I2	€
11.423.0350	3.5	3.5	70	39	0,75
11.423.0380	3.8	3.8	75	43	0,83
11.423.0400	4	4	75	43	0,83
11.423.0410	4.1	4.1	75	43	0,89
11.423.0420	4.2	4.2	75	43	0,89
11.423.0450	4.5	4.5	80	47	0,94
11.423.0480	4.8	4.8	86	52	1,04
11.423.0490	4.9	4.9	86	52	1,05

Ref.	d1	d2	I1	I2	€
11.423.0500	5	5	86	52	1,04
11.423.0510	5.1	5.1	86	52	1,20
11.423.0520	5.2	5.2	86	52	1,20
11.423.0550	5.5	5.5	93	57	1,20
11.423.0570	5.7	5.7	93	57	1,31
11.423.0580	5.8	5.8	93	57	1,30
11.423.0600	6	6	93	57	1,30
11.423.0620	6.2	6.2	101	63	1,50

> 11.423 INTERNATIONAL TOOLS

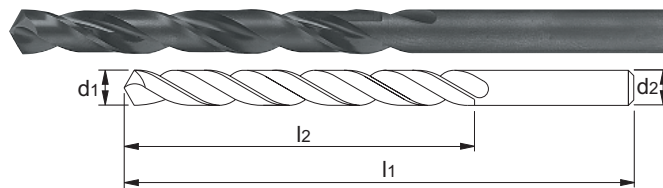
Ref.	d1	d2	l1	l2	€
11.423.0650	6.5	6.5	101	63	1,51
11.423.0680	6.8	6.8	109	69	1,77
11.423.0700	7	7	109	69	1,77
11.423.0750	7.5	7.5	109	69	2,08
11.423.0800	8	8	117	75	2,34
11.423.0850	8.5	8.5	117	75	2,61

Ref.	d1	d2	l1	l2	€
11.423.0900	9	9	125	81	3,13
11.423.0950	9.5	9.5	125	81	3,33
11.423.1000	10	10	133	87	3,65
11.423.1020	10.2	10.2	133	87	4,17
11.423.1050	10.5	10.5	133	87	4,17
11.423.1100	11	11	142	94	4,69

Ref.	d1	d2	l1	l2	€
11.423.1150	11.5	11.5	142	94	4,90
11.423.1200	12	12	151	101	5,52
11.423.1250	12.5	12.5	151	101	6,04
11.423.1300	13	13	151	101	6,40

> 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 5800 N/mm ²	P 12 5850 N/mm ²	P 13 51000 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

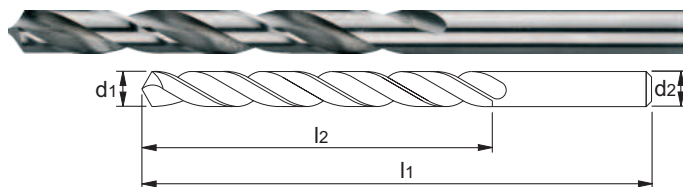
Ref.	d1	d2	l1	l2	€
11.426.0100	1	1	34	12	0,29
11.426.0110	1.1	1.1	36	14	0,29
11.426.0120	1.2	1.2	38	16	0,29
11.426.0130	1.3	1.3	38	16	0,29
11.426.0140	1.4	1.4	40	18	0,29
11.426.0150	1.5	1.5	40	18	0,29
11.426.0160	1.6	1.6	43	20	0,33
11.426.0170	1.7	1.7	43	20	0,33
11.426.0180	1.8	1.8	46	22	0,33
11.426.0190	1.9	1.9	46	22	0,33
11.426.0200	2	2	49	24	0,36
11.426.0210	2.1	2.1	49	24	0,44
11.426.0220	2.2	2.2	53	27	0,44
11.426.0230	2.3	2.3	53	27	0,44
11.426.0240	2.4	2.4	57	30	0,44
11.426.0250	2.5	2.5	57	30	0,44
11.426.0260	2.6	2.6	57	30	0,65
11.426.0270	2.7	2.7	61	33	0,65
11.426.0280	2.8	2.8	61	33	0,65
11.426.0290	2.9	2.9	61	33	0,65
11.426.0300	3	3	61	33	0,65
11.426.0310	3.1	3.1	65	36	0,75
11.426.0320	3.2	3.2	65	36	0,75
11.426.0330	3.3	3.3	65	36	0,75
11.426.0340	3.4	3.4	70	39	0,75
11.426.0350	3.5	3.5	70	39	0,75
11.426.0360	3.6	3.6	70	39	0,84
11.426.0370	3.7	3.7	70	39	0,84
11.426.0380	3.8	3.8	75	43	0,83
11.426.0390	3.9	3.9	75	43	0,84
11.426.0400	4	4	75	43	0,83
11.426.0410	4.1	4.1	75	43	0,89
11.426.0420	4.2	4.2	75	43	0,89
11.426.0430	4.3	4.3	80	47	0,94
11.426.0440	4.4	4.4	80	47	0,94
11.426.0450	4.5	4.5	80	47	0,94
11.426.0460	4.6	4.6	80	47	1,05
11.426.0470	4.7	4.7	80	47	1,05
11.426.0480	4.8	4.8	86	52	1,04
11.426.0490	4.9	4.9	86	52	1,05

Ref.	d1	d2	l1	l2	€
11.426.0500	5	5	86	52	1,04
11.426.0510	5.1	5.1	86	52	1,20
11.426.0520	5.2	5.2	86	52	1,20
11.426.0530	5.3	5.3	86	52	1,20
11.426.0540	5.4	5.4	93	57	1,20
11.426.0550	5.5	5.5	93	57	1,20
11.426.0560	5.6	5.6	93	57	1,30
11.426.0570	5.7	5.7	93	57	1,31
11.426.0580	5.8	5.8	93	57	1,30
11.426.0590	5.9	5.9	93	57	1,30
11.426.0600	6	6	93	57	1,30
11.426.0610	6.1	6.1	101	63	1,50
11.426.0620	6.2	6.2	101	63	1,50
11.426.0630	6.3	6.3	101	63	1,50
11.426.0640	6.4	6.4	101	63	1,52
11.426.0650	6.5	6.5	101	63	1,51
11.426.0660	6.6	6.6	101	63	2,51
11.426.0670	6.7	6.7	101	63	1,77
11.426.0680	6.8	6.8	109	69	1,77
11.426.0690	6.9	6.9	109	69	2,51
11.426.0700	7	7	109	69	1,77
11.426.0710	7.1	7.1	109	69	2,08
11.426.0720	7.2	7.2	109	69	2,08
11.426.0730	7.3	7.3	109	69	2,08
11.426.0740	7.4	7.4	109	69	3,03
11.426.0750	7.5	7.5	109	69	2,08
11.426.0760	7.6	7.6	117	75	3,66
11.426.0770	7.7	7.7	117	75	3,66
11.426.0780	7.8	7.8	117	75	2,34
11.426.0790	7.9	7.9	117	75	2,35
11.426.0800	8	8	117	75	2,34
11.426.0810	8.1	8.1	117	75	3,97
11.426.0820	8.2	8.2	117	75	2,61
11.426.0830	8.3	8.3	117	75	2,62
11.426.0840	8.4	8.4	117	75	2,62
11.426.0850	8.5	8.5	117	75	2,61
11.426.0860	8.6	8.6	125	81	4,60
11.426.0870	8.7	8.7	125	81	3,14
11.426.0880	8.8	8.8	125	81	4,60
11.426.0890	8.9	8.9	125	81	3,13

Ref.	d1	d2	l1	l2	€
11.426.0900	9	9	125	81	3,13
11.426.0910	9.1	9.1	125	81	5,13
11.426.0920	9.2	9.2	125	81	5,11
11.426.0930	9.3	9.3	125	81	5,13
11.426.0940	9.4	9.4	125	81	5,13
11.426.0950	9.5	9.5	125	81	3,33
11.426.0960	9.6	9.6	133	87	5,86
11.426.0970	9.7	9.7	133	87	5,86
11.426.0980	9.8	9.8	133	87	5,86
11.426.0990	9.9	9.9	133	87	5,86
11.426.1000	10	10	133	87	3,65
11.426.1010	10.1	10.1	133	87	6,28
11.426.1020	10.2	10.2	133	87	4,17
11.426.1040	10.4	10.4	133	87	6,28
11.426.1050	10.5	10.5	133	87	4,17
11.426.1060	10.6	10.6	133	87	8,37
11.426.1070	10.7	10.7	142	94	8,37
11.426.1080	10.8	10.8	142	94	8,37
11.426.1090	10.9	10.9	142	94	8,37
11.426.1100	11	11	142	94	4,69
11.426.1110	11.1	11.1	142	94	8,14
11.426.1120	11.2	11.2	142	94	8,37
11.426.1130	11.3	11.3	142	94	8,14
11.426.1140	11.4	11.4	142	94	8,14
11.426.1150	11.5	11.5	142	94	4,90
11.426.1160	11.6	11.6	142	94	9,00
11.426.1170	11.7	11.7	142	94	9,40
11.426.1180	11.8	11.8	142	94	9,20
11.426.1190	11.9	11.9	151	101	9,00
11.426.1200	12	12	151	101	5,52
11.426.1210	12.1	12.1	151	101	10,49
11.426.1220	12.2	12.2	151	101	9,94
11.426.1230	12.3	12.3	151	101	10,49
11.426.1240	12.4	12.4	151	101	10,49
11.426.1250	12.5	12.5	151	101	6,04
11.426.1260	12.6	12.6	151	101	10,85
11.426.1270	12.7	12.7	151	101	10,85
11.426.1280	12.8	12.8	151	101	10,36
11.426.1300	13	13	151	101	6,40

**> 11.430 INTERNATIONAL TOOLS**

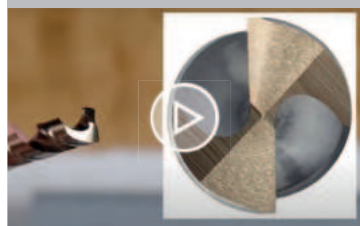
NL ECO PRO HSS Spiraalboor Kruisaanslijping
FR Foret HSS ECO PRO Affûtage en croix
ES Broca HSS ECO PRO Afilado en cruz
DE ECO PRO HSS Spiralbohrer Kreuzanschliff
EN ECO PRO HSS Twist drill Split point



Ref.	d1	d2	l1	l2	€
11.430.0100	1	1	34	12	0,46
11.430.0110	1.1	1.1	36	14	0,46
11.430.0120	1.2	1.2	38	16	0,46
11.430.0130	1.3	1.3	38	16	0,46
11.430.0140	1.4	1.4	40	18	0,46
11.430.0150	1.5	1.5	40	18	0,46
11.430.0160	1.6	1.6	43	20	0,52
11.430.0170	1.7	1.7	43	20	0,52
11.430.0180	1.8	1.8	46	22	0,52
11.430.0190	1.9	1.9	46	22	0,52
11.430.0200	2	2	49	24	0,57
11.430.0210	2.1	2.1	49	24	0,65
11.430.0220	2.2	2.2	53	27	0,65
11.430.0230	2.3	2.3	53	27	0,65
11.430.0240	2.4	2.4	57	30	0,64
11.430.0250	2.5	2.5	57	30	0,64
11.430.0260	2.6	2.6	57	30	0,89
11.430.0270	2.7	2.7	61	33	0,88
11.430.0280	2.8	2.8	61	33	0,88
11.430.0290	2.9	2.9	61	33	0,89
11.430.0300	3	3	61	33	0,88
11.430.0310	3.1	3.1	65	36	1,24
11.430.0320	3.2	3.2	65	36	1,24
11.430.0330	3.3	3.3	65	36	1,24
11.430.0340	3.4	3.4	70	39	1,24
11.430.0350	3.5	3.5	70	39	1,24
11.430.0360	3.6	3.6	70	39	1,41
11.430.0370	3.7	3.7	70	39	1,41
11.430.0380	3.8	3.8	75	43	1,41
11.430.0390	3.9	3.9	75	43	1,41
11.430.0400	4	4	75	43	1,41
11.430.0410	4.1	4.1	75	43	1,57
11.430.0420	4.2	4.2	75	43	1,57
11.430.0430	4.3	4.3	80	47	1,71
11.430.0440	4.4	4.4	80	47	1,71
11.430.0450	4.5	4.5	80	47	1,71
11.430.0460	4.6	4.6	80	47	1,84
11.430.0470	4.7	4.7	80	47	1,84
11.430.0480	4.8	4.8	86	52	1,84
11.430.0490	4.9	4.9	86	52	1,84
11.430.0500	5	5	86	52	1,84

Ref.	d1	d2	l1	l2	€
11.430.0510	5.1	5.1	86	52	2,30
11.430.0520	5.2	5.2	86	52	2,30
11.430.0530	5.3	5.3	86	52	2,30
11.430.0540	5.4	5.4	93	57	2,30
11.430.0550	5.5	5.5	93	57	2,30
11.430.0560	5.6	5.6	93	57	2,57
11.430.0570	5.7	5.7	93	57	2,57
11.430.0580	5.8	5.8	93	57	2,57
11.430.0590	5.9	5.9	93	57	2,57
11.430.0600	6	6	93	57	2,57
11.430.0610	6.1	6.1	101	63	3,00
11.430.0620	6.2	6.2	101	63	3,00
11.430.0630	6.3	6.3	101	63	3,00
11.430.0640	6.4	6.4	101	63	3,03
11.430.0650	6.5	6.5	101	63	3,03
11.430.0660	6.6	6.6	101	63	3,47
11.430.0670	6.7	6.7	101	63	3,47
11.430.0680	6.8	6.8	109	69	3,47
11.430.0690	6.9	6.9	109	69	3,47
11.430.0700	7	7	109	69	3,47
11.430.0710	7.1	7.1	109	69	3,83
11.430.0720	7.2	7.2	109	69	3,83
11.430.0730	7.3	7.3	109	69	3,83
11.430.0740	7.4	7.4	109	69	3,83
11.430.0750	7.5	7.5	109	69	3,73
11.430.0760	7.6	7.6	117	75	4,45
11.430.0770	7.7	7.7	117	75	4,45
11.430.0780	7.8	7.8	117	75	4,45
11.430.0790	7.9	7.9	117	75	4,45
11.430.0800	8	8	117	75	4,45
11.430.0810	8.1	8.1	117	75	4,82
11.430.0820	8.2	8.2	117	75	4,82
11.430.0830	8.3	8.3	117	75	4,82
11.430.0840	8.4	8.4	117	75	4,82
11.430.0850	8.5	8.5	117	75	4,82
11.430.0860	8.6	8.6	125	81	5,59
11.430.0870	8.7	8.7	125	81	5,59
11.430.0880	8.8	8.8	125	81	5,59
11.430.0890	8.9	8.9	125	81	5,59
11.430.0900	9	9	125	81	5,59
11.430.0910	9.1	9.1	125	81	6,11

Ref.	d1	d2	l1	l2	€
11.430.0920	9.2	9.2	125	81	6,11
11.430.0930	9.3	9.3	125	81	6,11
11.430.0940	9.4	9.4	125	81	6,11
11.430.0950	9.5	9.5	125	81	6,11
11.430.0960	9.6	9.6	133	87	6,89
11.430.0970	9.7	9.7	133	87	6,89
11.430.0980	9.8	9.8	133	87	6,89
11.430.0990	9.9	9.9	133	87	6,89
11.430.1000	10	10	133	87	6,89
11.430.1010	10.1	10.1	133	87	7,41
11.430.1020	10.2	10.2	133	87	7,41
11.430.1030	10.3	10.3	133	87	7,41
11.430.1040	10.4	10.4	133	87	7,41
11.430.1050	10.5	10.5	133	87	7,41
11.430.1060	10.6	10.6	133	87	8,72
11.430.1070	10.7	10.7	142	94	8,72
11.430.1080	10.8	10.8	142	94	8,72
11.430.1090	10.9	10.9	142	94	8,72
11.430.1100	11	11	142	94	8,72
11.430.1120	11.2	11.2	142	94	9,32
11.430.1150	11.5	11.5	142	94	9,32
11.430.1180	11.8	11.8	142	94	10,36
11.430.1200	12	12	151	101	10,62
11.430.1220	12.2	12.2	151	101	11,19
11.430.1250	12.5	12.5	151	101	11,19
11.430.1280	12.8	12.8	151	101	12,12
11.430.1300	13	13	151	101	12,12
11.430.1350	13.5	13.5	160	108	21,76
11.430.1400	14	14	160	108	23,83
11.430.1450	14.5	14.5	169	114	29,00
11.430.1500	15	15	169	114	31,10
11.430.1550	15.5	15.5	178	120	34,20
11.430.1600	16	16	178	120	36,25
11.430.1650	16.5	16.5	184	125	38,35
11.430.1700	17	17	184	125	40,40
11.430.1750	17.5	17.5	191	130	43,50
11.430.1800	18	18	191	130	48,70
11.430.1850	18.5	18.5	198	135	50,75
11.430.1900	19	19	198	135	52,85
11.430.1950	19.5	19.5	205	140	55,95
11.430.2000	20	20	205	140	58,00



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

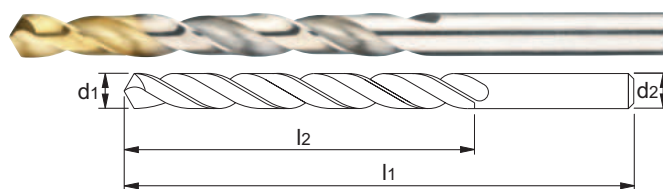
Watch me



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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						
P 11 5000 N/mm²	P 12 5500 N/mm²	P 13 10000 N/mm²	M 21 INOX 8500 N/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 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

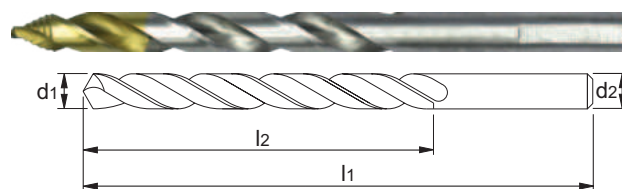
Ref.	d1	d2	l1	l2	€
11.431.0100	1	1	34	12	0,56
11.431.0110	1.1	1.1	36	14	0,60
11.431.0120	1.2	1.2	38	16	0,62
11.431.0130	1.3	1.3	38	16	0,64
11.431.0140	1.4	1.4	40	18	0,65
11.431.0150	1.5	1.5	40	18	0,67
11.431.0160	1.6	1.6	43	20	0,77
11.431.0170	1.7	1.7	43	20	0,79
11.431.0180	1.8	1.8	46	22	0,81
11.431.0190	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	4,07
11.431.0660	6.6	6.6	101	63	4,49
11.431.0670	6.7	6.7	101	63	4,79
11.431.0680	6.8	6.8	109	69	4,52
11.431.0690	6.9	6.9	109	69	4,53
11.431.0700	7	7	109	69	4,55
11.431.0710	7.1	7.1	109	69	5,20
11.431.0720	7.2	7.2	109	69	4,94
11.431.0730	7.3	7.3	109	69	5,23
11.431.0740	7.4	7.4	109	69	5,25
11.431.0750	7.5	7.5	109	69	4,85
11.431.0760	7.6	7.6	117	75	5,61
11.431.0770	7.7	7.7	117	75	5,63
11.431.0780	7.8	7.8	117	75	6,00
11.431.0790	7.9	7.9	117	75	6,02
11.431.0800	8	8	117	75	5,67
11.431.0810	8.1	8.1	117	75	6,32
11.431.0820	8.2	8.2	117	75	6,08
11.431.0830	8.3	8.3	117	75	6,36

Ref.	d1	d2	l1	l2	€
11.431.0840	8.4	8.4	117	75	6,38
11.431.0850	8.5	8.5	117	75	6,13
11.431.0860	8.6	8.6	125	81	7,23
11.431.0870	8.7	8.7	125	81	7,25
11.431.0880	8.8	8.8	125	81	7,26
11.431.0890	8.9	8.9	125	81	7,28
11.431.0900	9	9	125	81	6,95
11.431.0910	9.1	9.1	125	81	7,88
11.431.0920	9.2	9.2	125	81	7,90
11.431.0930	9.3	9.3	125	81	7,91
11.431.0940	9.4	9.4	125	81	7,51
11.431.0950	9.5	9.5	125	81	7,53
11.431.0960	9.6	9.6	133	87	8,74
11.431.0970	9.7	9.7	133	87	8,76
11.431.0980	9.8	9.8	133	87	8,78
11.431.0990	9.9	9.9	133	87	8,79
11.431.1000	10	10	133	87	8,32
11.431.1010	10.1	10.1	133	87	9,28
11.431.1020	10.2	10.2	133	87	8,83
11.431.1030	10.3	10.3	133	87	9,31
11.431.1040	10.4	10.4	133	87	9,33
11.431.1050	10.5	10.5	133	87	8,88
11.431.1060	10.6	10.6	133	87	10,21
11.431.1070	10.7	10.7	142	94	10,76
11.431.1080	10.8	10.8	142	94	10,78
11.431.1090	10.9	10.9	142	94	10,79
11.431.1100	11	11	142	94	10,27
11.431.1120	11.2	11.2	142	94	10,93
11.431.1150	11.5	11.5	142	94	10,97
11.431.1180	11.8	11.8	142	94	13,74
11.431.1200	12	12	151	101	13,37
11.431.1220	12.2	12.2	151	101	14,45
11.431.1250	12.5	12.5	151	101	15,41
11.431.1280	12.8	12.8	151	101	16,97
11.431.1300	13	13	151	101	16,48

> 11.434 INTERNATIONAL TOOLS

NL ECO PRO HSS Spiraalboor Step-point, TiN-tip, met drievlaks schacht
FR Foret HSS ECO PRO Step-point, avec revêtement TiN sur la partie utile, queue à trois méplats
ES Broca HSS ECO PRO Step-point, con punta TiN, con 3 chaflandes
DE ECO PRO HSS Spiralbohrer Step-point, TiN-Tip, 3-Flächen-Schaft
EN ECO PRO HSS Twist drill Step-point, TiN coated tip, with 3 flat surfaces



HSS	TiN	DIN 338	N					
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 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

NIEUW / NOUVEAU / NUEVO / NEU

Ref.	d1	d2	l1	l2	€
11.434.0100	1	1	34	12	0,56
11.434.0150	1.5	1.5	40	18	0,67
11.434.0200	2	2	49	24	0,84
11.434.0250	2.5	2.5	57	30	1,17
11.434.0300	3	3	61	33	1,51
11.434.0320	3.2	3.2	65	36	1,84
11.434.0330	3.3	3.3	65	36	1,86
11.434.0350	3.5	3.5	70	39	1,90
11.434.0400	4	4	75	43	2,19

Ref.	d1	d2	l1	l2	€
11.434.0420	4.2	4.2	75	43	2,36
11.434.0450	4.5	4.5	80	47	2,47
11.434.0480	4.8	4.8	86	52	2,83
11.434.0500	5	5	86	52	2,87
11.434.0510	5.1	5.1	86	52	3,09
11.434.0520	5.2	5.2	86	52	3,11
11.434.0550	5.5	5.5	93	57	3,16
11.434.0600	6	6	93	57	3,50
11.434.0650	6.5	6.5	101	63	4,07

Ref.	d1	d2	l1	l2	€
11.434.0680	6.8	6.8	109	69	4,52
11.434.0700	7	7	109	69	4,55
11.434.0750	7.5	7.5	109	69	4,85
11.434.0800	8	8	117	75	5,67
11.434.0850	8.5	8.5	117	75	6,13
11.434.0900	9	9	125	81	6,95
11.434.0950	9.5	9.5	125	81	7,53
11.434.1000	10	10	133	87	8,32
11.434.1020	10.2	10.2	133	87	8,83

**> 11.434 INTERNATIONAL TOOLS**

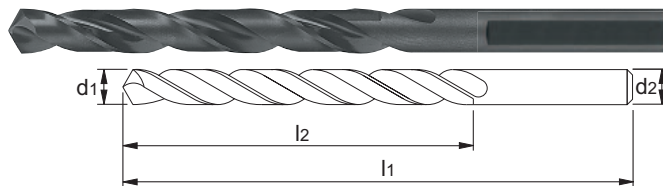
Ref.	d1	d2	l1	l2	€
11.434.1050	10.5	10.5	133	87	8,88
11.434.1100	11	11	142	94	10,27

Ref.	d1	d2	l1	l2	€
11.434.1150	11.5	11.5	142	94	10,97
11.434.1200	12	12	151	101	13,37

Ref.	d1	d2	l1	l2	€
11.434.1250	12.5	12.5	151	101	15,41
11.434.1300	13	13	151	101	16,48

> 11.440 Phantom

NL HSS Spiraalboor met drievlaks schacht
FR Foret HSS queue à trois méplats
ES Broca HSS con 3 chaflanes
DE HSS Spiralbohrer 3-Flächen-Schaft
EN HSS Twist drill with 3 flat surfaces



P 11 5600 N/mm²	P 12 5850 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
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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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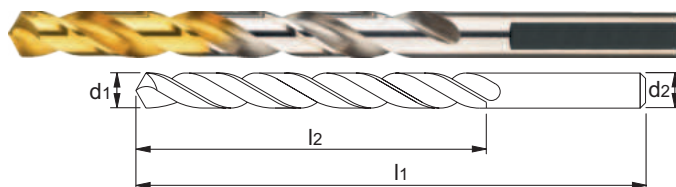
Ref.	d1	d2	l1	l2	€
11.440.0400	4	4	75	43	2,35
11.440.0420	4.2	4.2	75	43	2,76
11.440.0450	4.5	4.5	80	47	2,63
11.440.0500	5	5	86	52	3,03
11.440.0550	5.5	5.5	93	57	3,37
11.440.0600	6	6	93	57	3,75
11.440.0650	6.5	6.5	101	63	4,36
11.440.0680	6.8	6.8	109	69	5,75

Ref.	d1	d2	l1	l2	€
11.440.0700	7	7	109	69	4,94
11.440.0750	7.5	7.5	109	69	5,45
11.440.0800	8	8	117	75	6,60
11.440.0850	8.5	8.5	117	75	7,49
11.440.0900	9	9	125	81	8,65
11.440.0950	9.5	9.5	125	81	9,53
11.440.1000	10	10	133	87	10,45
11.440.1020	10.2	10.2	133	87	13,12

Ref.	d1	d2	l1	l2	€
11.440.1050	10.5	10.5	133	87	11,37
11.440.1100	11	11	142	94	11,64
11.440.1150	11.5	11.5	142	94	12,66
11.440.1200	12	12	151	101	15,13
11.440.1250	12.5	12.5	151	101	16,38
11.440.1300	13	13	151	101	16,92

> 11.441 Phantom

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



P 11 5600 N/mm²	P 12 5850 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
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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
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Ref.	d1	d2	l1	l2	€
11.441.0400	4	4	75	43	2,91
11.441.0410	4.1	4.1	75	43	3,28
11.441.0420	4.2	4.2	75	43	3,28
11.441.0430	4.3	4.3	80	47	3,30
11.441.0450	4.5	4.5	80	47	3,28
11.441.0470	4.7	4.7	80	47	3,68
11.441.0480	4.8	4.8	86	52	3,68
11.441.0490	4.9	4.9	86	52	3,68
11.441.0500	5	5	86	52	3,92
11.441.0510	5.1	5.1	86	52	3,99
11.441.0520	5.2	5.2	86	52	3,99
11.441.0530	5.3	5.3	86	52	4,65

Ref.	d1	d2	l1	l2	€
11.441.0550	5.5	5.5	93	57	4,70
11.441.0570	5.7	5.7	93	57	4,76
11.441.0580	5.8	5.8	93	57	4,76
11.441.0600	6	6	93	57	5,44
11.441.0610	6.1	6.1	101	63	5,42
11.441.0620	6.2	6.2	101	63	5,42
11.441.0630	6.3	6.3	101	63	5,46
11.441.0650	6.5	6.5	101	63	5,55
11.441.0670	6.7	6.7	101	63	5,74
11.441.0680	6.8	6.8	109	69	6,09
11.441.0700	7	7	109	69	6,66
11.441.0750	7.5	7.5	109	69	7,07

Ref.	d1	d2	l1	l2	€
11.441.0800	8	8	117	75	8,45
11.441.0850	8.5	8.5	117	75	10,30
11.441.0900	9	9	125	81	11,24
11.441.0950	9.5	9.5	125	81	12,49
11.441.1000	10	10	133	87	13,07
11.441.1020	10.2	10.2	133	87	14,02
11.441.1050	10.5	10.5	133	87	14,18
11.441.1100	11	11	142	94	14,79
11.441.1150	11.5	11.5	142	94	17,96
11.441.1200	12	12	151	101	18,23
11.441.1250	12.5	12.5	151	101	21,52
11.441.1300	13	13	151	101	22,27



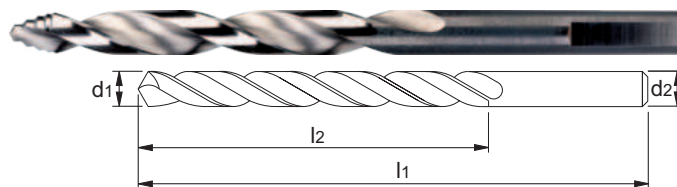
NL De boor bij uitstek voor handgebruik
FR Le foret idéalement adapté pour l'utilisation manuelle
ES La broca por excelencia para uso manual
DE Der Spitzenbohrer für den Handgebrauch
EN The drill of choice for manual use



www.phantom.eu

> 11.443 Phantom

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

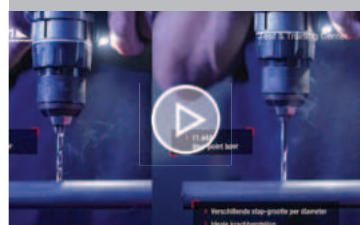


HSS	OX.	DIN 338	N	 ≥4	 ≥2.5		 118°	
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≥850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

Ref.	d1	d2	l1	l2	€
11.443.0100	1	1	34	12	2,88
11.443.0150	1.5	1.5	40	18	3,08
11.443.0200	2	2	49	24	3,30
11.443.0250	2.5	2.5	57	30	4,02
11.443.0300	3	3	61	33	4,53
11.443.0320	3.2	3.2	65	36	4,44
11.443.0330	3.3	3.3	65	36	4,53
11.443.0350	3.5	3.5	70	39	4,70
11.443.0400	4	4	75	43	5,03
11.443.0410	4.1	4.1	75	43	5,35
11.443.0420	4.2	4.2	75	43	5,35
11.443.0450	4.5	4.5	80	47	5,54

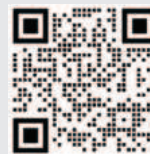
Ref.	d1	d2	l1	l2	€
11.443.0490	4.9	4.9	86	52	5,72
11.443.0500	5	5	86	52	6,63
11.443.0510	5.1	5.1	86	52	7,14
11.443.0520	5.2	5.2	86	52	7,45
11.443.0550	5.5	5.5	93	57	7,45
11.443.0600	6	6	93	57	8,47
11.443.0650	6.5	6.5	101	63	9,15
11.443.0680	6.8	6.8	109	69	9,66
11.443.0700	7	7	109	69	9,74
11.443.0750	7.5	7.5	109	69	10,98
11.443.0800	8	8	117	75	12,48
11.443.0850	8.5	8.5	117	75	12,92

Ref.	d1	d2	l1	l2	€
11.443.0900	9	9	125	81	14,51
11.443.0950	9.5	9.5	125	81	15,10
11.443.1000	10	10	133	87	17,79
11.443.1020	10.2	10.2	133	87	19,13
11.443.1050	10.5	10.5	133	87	19,55
11.443.1100	11	11	142	94	22,65
11.443.1150	11.5	11.5	142	94	23,34
11.443.1200	12	12	151	101	26,50
11.443.1250	12.5	12.5	151	101	30,10
11.443.1300	13	13	151	101	31,00



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

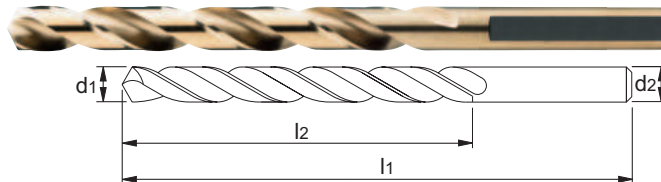
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> 11.445 Phantom

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



HSS-E	DIN 338	N			135° 				
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 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	€
11.445.0400	4	4	75	43	3,36
11.445.0420	4.2	4.2	75	43	4,39
11.445.0450	4.5	4.5	80	47	3,68
11.445.0500	5	5	86	52	4,16
11.445.0550	5.5	5.5	93	57	4,89
11.445.0600	6	6	93	57	5,53
11.445.0650	6.5	6.5	101	63	6,66
11.445.0680	6.8	6.8	109	69	9,46

Ref.	d1	d2	l1	l2	€
11.445.0700	7	7	109	69	7,68
11.445.0750	7.5	7.5	109	69	8,75
11.445.0800	8	8	117	75	9,63
11.445.0850	8.5	8.5	117	75	11,55
11.445.0900	9	9	125	81	12,60
11.445.0950	9.5	9.5	125	81	13,95
11.445.1000	10	10	133	87	16,22
11.445.1020	10.2	10.2	133	87	20,21

Ref.	d1	d2	l1	l2	€
11.445.1050	10.5	10.5	133	87	18,23
11.445.1100	11	11	142	94	19,36
11.445.1150	11.5	11.5	142	94	22,63
11.445.1200	12	12	151	101	22,73
11.445.1250	12.5	12.5	151	101	25,20
11.445.1300	13	13	151	101	25,05

> 11.446 Phantom

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

HSS-E	TiN	DIN 338	>N			118° 			
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤500 N/mm²	≤550 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	€
11.446.0400	4	4	75	43	3,73
11.446.0410	4.1	4.1	75	43	4,46
11.446.0420	4.2	4.2	75	43	4,02
11.446.0430	4.3	4.3	80	47	5,63
11.446.0450	4.5	4.5	80	47	4,02
11.446.0470	4.7	4.7	80	47	7,45
11.446.0480	4.8	4.8	86	52	5,86
11.446.0490	4.9	4.9	86	52	5,86
11.446.0500	5	5	86	52	4,54
11.446.0510	5.1	5.1	86	52	7,85
11.446.0520	5.2	5.2	86	52	7,85
11.446.0530	5.3	5.3	86	52	7,85

Ref.	d1	d2	l1	l2	€
11.446.0550	5.5	5.5	93	57	5,34
11.446.0570	5.7	5.7	93	57	8,07
11.446.0580	5.8	5.8	93	57	8,07
11.446.0600	6	6	93	57	6,18
11.446.0610	6.1	6.1	101	63	10,29
11.446.0620	6.2	6.2	101	63	10,29
11.446.0630	6.3	6.3	101	63	10,29
11.446.0650	6.5	6.5	101	63	7,37
11.446.0670	6.7	6.7	101	63	12,02
11.446.0680	6.8	6.8	109	69	8,44
11.446.0700	7	7	109	69	8,44
11.446.0750	7.5	7.5	109	69	9,64

Ref.	d1	d2	l1	l2	€
11.446.0800	8	8	117	75	10,54
11.446.0850	8.5	8.5	117	75	12,69
11.446.0900	9	9	125	81	13,85
11.446.0950	9.5	9.5	125	81	15,37
11.446.1000	10	10	133	87	17,72
11.446.1020	10.2	10.2	133	87	19,73
11.446.1050	10.5	10.5	133	87	19,73
11.446.1100	11	11	142	94	20,38
11.446.1150	11.5	11.5	142	94	23,89
11.446.1200	12	12	151	101	24,53
11.446.1250	12.5	12.5	151	101	27,10
11.446.1300	13	13	151	101	27,75



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

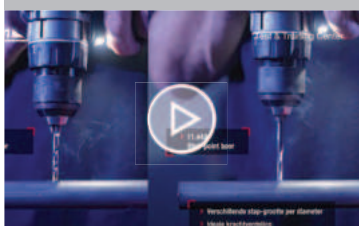
NL HSS-E Spiraalboor Step-point, met drievlaks schacht
FR Foret HSS-E Step-point, queue à trois méplats
ES Broca HSS-E Step-point, con 3 chaflanes
DE HSS-E Spiralbohrer Step-point, 3-Flächen-Schaft
EN HSS-E Twist drill Step-point, with 3 flat surfaces

HSS-E	OX.	DIN 338	>N	 ≥4	 ≥2,5		 118°		
P 11 ≤600 N/mm²	P 12 ≤550 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.	d1	d2	l1	l2	€
11.447.0100	1	1	34	12	3,44
11.447.0150	1.5	1.5	40	18	3,66
11.447.0200	2	2	49	24	3,96
11.447.0250	2.5	2.5	57	30	4,83
11.447.0300	3	3	61	33	5,43
11.447.0320	3.2	3.2	65	36	5,33
11.447.0330	3.3	3.3	65	36	5,43
11.447.0350	3.5	3.5	70	39	5,66
11.447.0400	4	4	75	43	6,05
11.447.0410	4.1	4.1	75	43	6,43
11.447.0420	4.2	4.2	75	43	6,43
11.447.0450	4.5	4.5	80	47	6,64

Ref.	d1	d2	l1	l2	€
11.447.0490	4.9	4.9	86	52	6,86
11.447.0500	5	5	86	52	7,95
11.447.0510	5.1	5.1	86	52	8,57
11.447.0520	5.2	5.2	86	52	8,95
11.447.0550	5.5	5.5	93	57	8,95
11.447.0600	6	6	93	57	10,15
11.447.0650	6.5	6.5	101	63	10,98
11.447.0680	6.8	6.8	109	69	11,59
11.447.0700	7	7	109	69	11,69
11.447.0750	7.5	7.5	109	69	13,17
11.447.0800	8	8	117	75	14,98
11.447.0850	8.5	8.5	117	75	15,50

Ref.	d1	d2	l1	l2	€
11.447.0900	9	9	125	81	17,41
11.447.0950	9.5	9.5	125	81	18,12
11.447.1000	10	10	133	87	21,35
11.447.1020	10.2	10.2	133	87	22,96
11.447.1050	10.5	10.5	133	87	23,46
11.447.1100	11	11	142	94	27,15
11.447.1150	11.5	11.5	142	94	28,05
11.447.1200	12	12	151	101	31,75
11.447.1250	12.5	12.5	151	101	36,15
11.447.1300	13	13	151	101	37,20



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

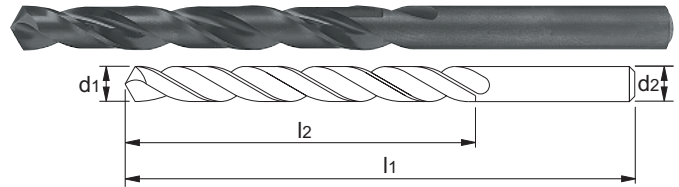
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> 11.450 Phantom

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



Ref.	d1	d2	l1	l2	€
11.450.0020	0.2	0.2	19	2.5	5,71
11.450.0025	0.25	0.25	19	3	5,61
11.450.0030	0.3	0.3	19	3	4,79
11.450.0035	0.35	0.35	19	4	5,30
11.450.0040	0.4	0.4	20	5	4,98
11.450.0045	0.45	0.45	20	5	5,00
11.450.0050	0.5	0.5	22	6	4,40
11.450.0055	0.55	0.55	24	7	4,37
11.450.0060	0.6	0.6	24	7	3,94
11.450.0065	0.65	0.65	26	8	4,03
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	1,79
11.450.0105	1.05	1.05	34	12	2,73
11.450.0110	1.1	1.1	36	14	2,03
11.450.0115	1.15	1.15	36	14	2,32
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	2,08
11.450.0135	1.35	1.35	40	18	2,63
11.450.0140	1.4	1.4	40	18	2,08
11.450.0145	1.45	1.45	40	18	2,32
11.450.0150	1.5	1.5	40	18	1,99
11.450.0155	1.55	1.55	43	20	2,13
11.450.0160	1.6	1.6	43	20	1,93
11.450.0165	1.65	1.65	43	20	2,13
11.450.0170	1.7	1.7	43	20	1,99
11.450.0175	1.75	1.75	46	22	2,20
11.450.0180	1.8	1.8	46	22	2,11
11.450.0185	1.85	1.85	46	22	2,91
11.450.0190	1.9	1.9	46	22	2,11
11.450.0195	1.95	1.95	49	24	2,20
11.450.0200	2	2	49	24	1,80
11.450.0205	2.05	2.05	49	24	1,96
11.450.0210	2.1	2.1	49	24	1,85
11.450.0215	2.15	2.15	53	27	1,96
11.450.0220	2.2	2.2	53	27	1,79
11.450.0225	2.25	2.25	53	27	1,93
11.450.0230	2.3	2.3	53	27	1,79
11.450.0235	2.35	2.35	53	27	1,93
11.450.0240	2.4	2.4	57	30	1,79
11.450.0245	2.45	2.45	57	30	1,93
11.450.0250	2.5	2.5	57	30	1,49
11.450.0255	2.55	2.55	57	30	2,26
11.450.0260	2.6	2.6	57	30	2,06
11.450.0265	2.65	2.65	57	30	2,26
11.450.0270	2.7	2.7	61	33	2,06
11.450.0275	2.75	2.75	61	33	2,26
11.450.0280	2.8	2.8	61	33	2,06
11.450.0285	2.85	2.85	61	33	2,26
11.450.0290	2.9	2.9	61	33	2,06
11.450.0295	2.95	2.95	61	33	2,26
11.450.0300	3	3	61	33	2,00
11.450.0305	3.05	3.05	65	36	2,26
11.450.0310	3.1	3.1	65	36	2,16
11.450.0315	3.15	3.15	65	36	2,26
11.450.0320	3.2	3.2	65	36	2,16
11.450.0325	3.25	3.25	65	36	2,26
11.450.0330	3.3	3.3	65	36	2,16
11.450.0335	3.35	3.35	65	36	2,26
11.450.0340	3.4	3.4	70	39	2,16
11.450.0345	3.45	3.45	70	39	2,26
11.450.0350	3.5	3.5	70	39	2,00
11.450.0355	3.55	3.55	70	39	2,30
11.450.0360	3.6	3.6	70	39	2,26
11.450.0365	3.65	3.65	70	39	2,30

Ref.	d1	d2	l1	l2	€
11.450.0370	3.7	3.7	70	39	2,26
11.450.0375	3.75	3.75	70	39	2,54
11.450.0380	3.8	3.8	75	43	2,29
11.450.0385	3.85	3.85	75	43	2,69
11.450.0390	3.9	3.9	75	43	2,29
11.450.0395	3.95	3.95	75	43	2,69
11.450.0400	4	4	75	43	2,10
11.450.0405	4.05	4.05	75	43	2,83
11.450.0410	4.1	4.1	75	43	2,46
11.450.0415	4.15	4.15	75	43	2,83
11.450.0420	4.2	4.2	75	43	2,46
11.450.0425	4.25	4.25	75	43	2,83
11.450.0430	4.3	4.3	80	47	2,46
11.450.0435	4.35	4.35	80	47	2,83
11.450.0440	4.4	4.4	80	47	2,46
11.450.0445	4.45	4.45	80	47	2,83
11.450.0450	4.5	4.5	80	47	2,35
11.450.0455	4.55	4.55	80	47	3,17
11.450.0460	4.6	4.6	80	47	2,93
11.450.0465	4.65	4.65	80	47	3,17
11.450.0470	4.7	4.7	80	47	2,93
11.450.0475	4.75	4.75	80	47	3,17
11.450.0480	4.8	4.8	86	52	2,93
11.450.0485	4.85	4.85	86	52	3,17
11.450.0490	4.9	4.9	86	52	2,93
11.450.0495	4.95	4.95	86	52	3,17
11.450.0500	5	5	86	52	2,73
11.450.0510	5.1	5.1	86	52	3,19
11.450.0520	5.2	5.2	86	52	3,19
11.450.0525	5.25	5.25	86	52	3,37
11.450.0530	5.3	5.3	86	52	3,38
11.450.0540	5.4	5.4	93	57	3,38
11.450.0550	5.5	5.5	93	57	3,02
11.450.0555	5.55	5.55	93	57	3,56
11.450.0560	5.6	5.6	93	57	3,56
11.450.0570	5.7	5.7	93	57	3,56
11.450.0575	5.75	5.75	93	57	4,53
11.450.0580	5.8	5.8	93	57	3,56
11.450.0590	5.9	5.9	93	57	3,56
11.450.0600	6	6	93	57	3,35
11.450.0610	6.1	6.1	101	63	4,22
11.450.0620	6.2	6.2	101	63	4,22
11.450.0625	6.25	6.25	101	63	4,80
11.450.0630	6.3	6.3	101	63	4,22
11.450.0635	6.35	6.35	101	63	4,80
11.450.0640	6.4	6.4	101	63	4,22
11.450.0650	6.5	6.5	101	63	3,90
11.450.0660	6.6	6.6	101	63	5,07
11.450.0670	6.7	6.7	101	63	5,07
11.450.0675	6.75	6.75	109	69	5,14
11.450.0680	6.8	6.8	109	69	5,14
11.450.0690	6.9	6.9	109	69	5,14
11.450.0700	7	7	109	69	4,43
11.450.0710	7.1	7.1	109	69	5,48
11.450.0720	7.2	7.2	109	69	5,48
11.450.0725	7.25	7.25	109	69	5,99
11.450.0730	7.3	7.3	109	69	5,48
11.450.0740	7.4	7.4	109	69	5,70
11.450.0750	7.5	7.5	109	69	4,89
11.450.0760	7.6	7.6	117	75	6,28
11.450.0770	7.7	7.7	117	75	6,36
11.450.0775	7.75	7.75	117	75	6,36
11.450.0780	7.8	7.8	117	75	6,36
11.450.0790	7.9	7.9	117	75	6,36
11.450.0800	8	8	117	75	5,92
11.450.0810	8.1	8.1	117	75	7,03
11.450.0820	8.2	8.2	117	75	7,03
11.450.0825	8.25	8.25	117	75	7,35
11.450.0830	8.3	8.3	117	75	7,18
11.450.0840	8.4	8.4	117	75	7,18

	Ref.	d1	d2	l1	l2	€
	11.450.0850	8.5	8.5	117	75	6,61
	11.450.0860	8.6	8.6	125	81	8,50
	11.450.0870	8.7	8.7	125	81	8,50
	11.450.0875	8.75	8.75	125	81	9,30
	11.450.0880	8.8	8.8	125	81	8,50
	11.450.0890	8.9	8.9	125	81	8,50
	11.450.0900	9	9	125	81	7,72
	11.450.0910	9.1	9.1	125	81	9,37
	11.450.0920	9.2	9.2	125	81	9,37
	11.450.0925	9.25	9.25	125	81	9,90
	11.450.0930	9.3	9.3	125	81	9,37
	11.450.0940	9.4	9.4	125	81	9,37
	11.450.0950	9.5	9.5	125	81	8,49
	11.450.0960	9.6	9.6	133	87	10,34
	11.450.0970	9.7	9.7	133	87	10,34
	11.450.0975	9.75	9.75	133	87	10,28
	11.450.0980	9.8	9.8	133	87	10,34
	11.450.0990	9.9	9.9	133	87	10,34
	11.450.1000	10	10	133	87	9,36
	11.450.1010	10.1	10.1	133	87	11,76
	11.450.1020	10.2	10.2	133	87	11,76
	11.450.1025	10.25	10.25	133	87	12,19
	11.450.1030	10.3	10.3	133	87	12,19
	11.450.1040	10.4	10.4	133	87	12,19
	11.450.1050	10.5	10.5	133	87	10,18
	11.450.1060	10.6	10.6	133	87	13,50
	11.450.1070	10.7	10.7	142	94	13,50
	11.450.1075	10.75	10.75	142	94	13,50
	11.450.1080	10.8	10.8	142	94	13,50
	11.450.1090	10.9	10.9	142	94	13,50
	11.450.1100	11	11	142	94	10,44
	11.450.1110	11.1	11.1	142	94	15,28
	11.450.1120	11.2	11.2	142	94	15,28
	11.450.1125	11.25	11.25	142	94	15,28
	11.450.1130	11.3	11.3	142	94	15,28
	11.450.1140	11.4	11.4	142	94	15,28
	11.450.1150	11.5	11.5	142	94	11,20
	11.450.1160	11.6	11.6	142	94	15,69
	11.450.1170	11.7	11.7	142	94	15,69
	11.450.1175	11.75	11.75	142	94	15,69
	11.450.1180	11.8	11.8	142	94	15,69
	11.450.1190	11.9	11.9	151	101	15,69
	11.450.1200	12	12	151	101	13,63
	11.450.1210	12.1	12.1	151	101	16,71
	11.450.1220	12.2	12.2	151	101	16,71
	11.450.1225	12.25	12.25	151	101	16,71
	11.450.1230	12.3	12.3	151	101	16,71
	11.450.1240	12.4	12.4	151	101	17,36
	11.450.1250	12.5	12.5	151	101	14,60
	11.450.1260	12.6	12.6	151	101	17,99
	11.450.1270	12.7	12.7	151	101	17,99
	11.450.1275	12.75	12.75	151	101	17,99
	11.450.1280	12.8	12.8	151	101	17,99
	11.450.1290	12.9	12.9	151	101	17,99
	11.450.1300	13	13	151	101	15,12
	11.450.1310	13.1	13.1	151	101	26,70
	11.450.1320	13.2	13.2	151	101	26,70
	11.450.1325	13.25	13.25	160	108	26,70
	11.450.1330	13.3	13.3	160	108	26,70
	11.450.1340	13.4	13.4	160	108	26,70
	11.450.1350	13.5	13.5	160	108	23,40
	11.450.1360	13.6	13.6	160	108	26,70
	11.450.1370	13.7	13.7	160	108	26,70
	11.450.1375	13.75	13.75	160	108	26,70
	11.450.1380	13.8	13.8	160	108	26,70
	11.450.1390	13.9	13.9	160	108	26,70
	11.450.1400	14	14	160	108	23,89
	11.450.1425	14.25	14.25	169	114	41,20
	11.450.1450	14.5	14.5	169	114	36,50
	11.450.1475	14.75	14.75	169	114	41,20



> 11.450 Phantom

Ref.	d1	d2	l1	l2	€
11.450.1500	15	15	169	114	36,55
11.450.1510	15.1	15.1	178	120	43,25
11.450.1525	15.25	15.25	178	120	44,00
11.450.1550	15.5	15.5	178	120	39,75
11.450.1575	15.75	15.75	178	120	45,45
11.450.1580	15.8	15.8	178	120	45,45

Ref.	d1	d2	l1	l2	€
11.450.1600	16	16	178	120	40,75
11.450.1650	16.5	16.5	184	125	46,00
11.450.1690	16.9	16.9	184	125	46,30
11.450.1700	17	17	184	125	46,65
11.450.1750	17.5	17.5	191	130	50,05
11.450.1800	18	18	191	130	57,05

Ref.	d1	d2	l1	l2	€
11.450.1850	18.5	18.5	198	135	60,60
11.450.1890	18.9	18.9	198	135	61,60
11.450.1900	19	19	198	135	62,60
11.450.1950	19.5	19.5	205	140	65,90
11.450.2000	20	20	205	140	68,05

> 11.451 Phantom

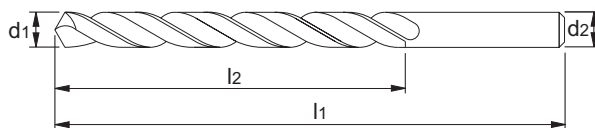
NL HSS Spiraalboor TiN-tip

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



Ref.	d1	d2	l1	l2	€
11.451.0100	1	1	34	12	1,87
11.451.0110	1.1	1.1	36	14	2,15
11.451.0120	1.2	1.2	38	16	2,15
11.451.0130	1.3	1.3	38	16	2,15
11.451.0140	1.4	1.4	40	18	2,15
11.451.0150	1.5	1.5	40	18	2,15
11.451.0160	1.6	1.6	43	20	2,23
11.451.0170	1.7	1.7	43	20	2,23
11.451.0180	1.8	1.8	46	22	2,23
11.451.0190	1.9	1.9	46	22	2,23
11.451.0200	2	2	49	24	2,23
11.451.0210	2.1	2.1	49	24	2,23
11.451.0220	2.2	2.2	53	27	2,15
11.451.0230	2.3	2.3	53	27	2,15
11.451.0240	2.4	2.4	57	30	2,15
11.451.0250	2.5	2.5	57	30	2,15
11.451.0260	2.6	2.6	57	30	2,23
11.451.0270	2.7	2.7	61	33	2,23
11.451.0280	2.8	2.8	61	33	2,23
11.451.0290	2.9	2.9	61	33	2,23
11.451.0300	3	3	61	33	2,23
11.451.0310	3.1	3.1	65	36	2,42
11.451.0320	3.2	3.2	65	36	2,42
11.451.0330	3.3	3.3	65	36	2,42
11.451.0340	3.4	3.4	70	39	2,42
11.451.0350	3.5	3.5	70	39	2,42
11.451.0360	3.6	3.6	70	39	2,63
11.451.0370	3.7	3.7	70	39	2,63
11.451.0380	3.8	3.8	75	43	2,63
11.451.0390	3.9	3.9	75	43	2,63
11.451.0400	4	4	75	43	2,68
11.451.0410	4.1	4.1	75	43	3,03
11.451.0420	4.2	4.2	75	43	3,03
11.451.0430	4.3	4.3	80	47	3,03
11.451.0440	4.4	4.4	80	47	3,03
11.451.0450	4.5	4.5	80	47	3,03
11.451.0460	4.6	4.6	80	47	3,44
11.451.0470	4.7	4.7	80	47	3,44
11.451.0480	4.8	4.8	86	52	3,44
11.451.0490	4.9	4.9	86	52	3,44
11.451.0500	5	5	86	52	3,63

Ref.	d1	d2	l1	l2	€
11.451.0510	5.1	5.1	86	52	3,70
11.451.0520	5.2	5.2	86	52	3,70
11.451.0530	5.3	5.3	86	52	4,38
11.451.0540	5.4	5.4	93	57	4,38
11.451.0550	5.5	5.5	93	57	4,38
11.451.0560	5.6	5.6	93	57	4,38
11.451.0570	5.7	5.7	93	57	4,38
11.451.0580	5.8	5.8	93	57	4,38
11.451.0590	5.9	5.9	93	57	4,38
11.451.0600	6	6	93	57	5,04
11.451.0610	6.1	6.1	101	63	5,04
11.451.0620	6.2	6.2	101	63	5,04
11.451.0630	6.3	6.3	101	63	5,04
11.451.0640	6.4	6.4	101	63	5,04
11.451.0650	6.5	6.5	101	63	5,11
11.451.0660	6.6	6.6	101	63	5,19
11.451.0670	6.7	6.7	101	63	5,28
11.451.0680	6.8	6.8	109	69	5,65
11.451.0690	6.9	6.9	109	69	5,65
11.451.0700	7	7	109	69	6,20
11.451.0710	7.1	7.1	109	69	6,52
11.451.0720	7.2	7.2	109	69	6,52
11.451.0730	7.3	7.3	109	69	6,52
11.451.0740	7.4	7.4	109	69	6,52
11.451.0750	7.5	7.5	109	69	6,52
11.451.0760	7.6	7.6	117	75	6,52
11.451.0770	7.7	7.7	117	75	7,06
11.451.0780	7.8	7.8	117	75	7,06
11.451.0790	7.9	7.9	117	75	7,06
11.451.0800	8	8	117	75	7,81
11.451.0810	8.1	8.1	117	75	8,75
11.451.0820	8.2	8.2	117	75	8,75
11.451.0830	8.3	8.3	117	75	9,41
11.451.0840	8.4	8.4	117	75	9,41
11.451.0850	8.5	8.5	117	75	9,41
11.451.0860	8.6	8.6	125	81	10,35
11.451.0870	8.7	8.7	125	81	10,35
11.451.0880	8.8	8.8	125	81	10,35
11.451.0890	8.9	8.9	125	81	10,35
11.451.0900	9	9	125	81	10,35
11.451.0910	9.1	9.1	125	81	10,83

Ref.	d1	d2	l1	l2	€
11.451.0920	9.2	9.2	125	81	10,83
11.451.0930	9.3	9.3	125	81	11,51
11.451.0940	9.4	9.4	125	81	11,51
11.451.0950	9.5	9.5	125	81	11,51
11.451.0960	9.6	9.6	133	87	11,77
11.451.0970	9.7	9.7	133	87	11,77
11.451.0980	9.8	9.8	133	87	11,92
11.451.0990	9.9	9.9	133	87	11,92
11.451.1000	10	10	133	87	12,04
11.451.1010	10.1	10.1	133	87	12,68
11.451.1020	10.2	10.2	133	87	12,91
11.451.1030	10.3	10.3	133	87	13,06
11.451.1040	10.4	10.4	133	87	13,06
11.451.1050	10.5	10.5	133	87	13,06
11.451.1060	10.6	10.6	133	87	14,75
11.451.1070	10.7	10.7	142	94	14,75
11.451.1080	10.8	10.8	142	94	14,75
11.451.1090	10.9	10.9	142	94	14,75
11.451.1100	11	11	142	94	13,66
11.451.1110	11.1	11.1	142	94	16,56
11.451.1120	11.2	11.2	142	94	16,56
11.451.1130	11.3	11.3	142	94	16,56
11.451.1140	11.4	11.4	142	94	16,56
11.451.1150	11.5	11.5	142	94	16,56
11.451.1160	11.6	11.6	142	94	17,09
11.451.1170	11.7	11.7	142	94	17,09
11.451.1180	11.8	11.8	142	94	17,09
11.451.1190	11.9	11.9	151	101	17,09
11.451.1200	12	12	151	101	16,83
11.451.1210	12.1	12.1	151	101	18,69
11.451.1220	12.2	12.2	151	101	18,69
11.451.1230	12.3	12.3	151	101	18,69
11.451.1240	12.4	12.4	151	101	18,83
11.451.1250	12.5	12.5	151	101	19,85
11.451.1260	12.6	12.6	151	101	21,04
11.451.1270	12.7	12.7	151	101	21,04
11.451.1280	12.8	12.8	151	101	21,04
11.451.1290	12.9	12.9	151	101	21,04
11.451.1300	13	13	151	101	20,59



NL Uitleg calculatietool
FR Regardez la vidéo d'instruction de l'outil de calcul
ES Explicación de la herramienta de cálculo
DE Erläuterung Rechner
EN Calculation tool explained

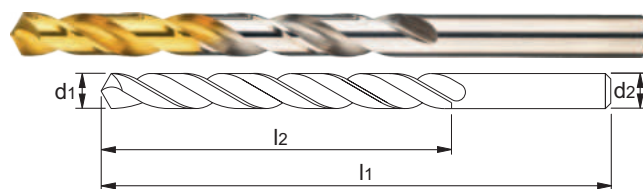
Watch me



www.phantom.eu

> 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		118° 				
P 11 ≤500 N/mm²	P 12 ≤550 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 Sp>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

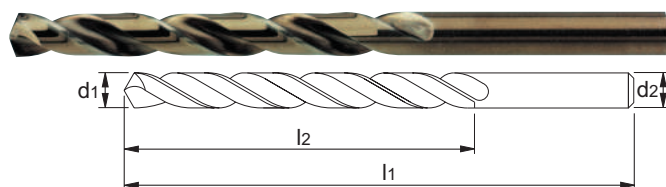
Ref.	d1	d2	l1	l2	€
11.461.0100	1	1	34	12	1,87
11.461.0110	1.1	1.1	36	14	2,15
11.461.0120	1.2	1.2	38	16	2,15
11.461.0130	1.3	1.3	38	16	2,15
11.461.0140	1.4	1.4	40	18	2,15
11.461.0150	1.5	1.5	40	18	2,15
11.461.0160	1.6	1.6	43	20	2,23
11.461.0170	1.7	1.7	43	20	2,23
11.461.0180	1.8	1.8	46	22	2,23
11.461.0190	1.9	1.9	46	22	2,23
11.461.0200	2	2	49	24	2,23
11.461.0210	2.1	2.1	49	24	2,23
11.461.0220	2.2	2.2	53	27	2,14
11.461.0230	2.3	2.3	53	27	2,14
11.461.0240	2.4	2.4	57	30	2,14
11.461.0250	2.5	2.5	57	30	2,14
11.461.0260	2.6	2.6	57	30	2,23
11.461.0270	2.7	2.7	61	33	2,23
11.461.0280	2.8	2.8	61	33	2,23
11.461.0290	2.9	2.9	61	33	2,23
11.461.0300	3	3	61	33	2,23
11.461.0310	3.1	3.1	65	36	2,42
11.461.0320	3.2	3.2	65	36	2,42
11.461.0330	3.3	3.3	65	36	2,42
11.461.0340	3.4	3.4	70	39	2,42
11.461.0350	3.5	3.5	70	39	2,42
11.461.0360	3.6	3.6	70	39	2,63
11.461.0370	3.7	3.7	70	39	2,63
11.461.0380	3.8	3.8	75	43	2,63
11.461.0390	3.9	3.9	75	43	2,63
11.461.0400	4	4	75	43	2,67
11.461.0410	4.1	4.1	75	43	3,02
11.461.0420	4.2	4.2	75	43	3,02
11.461.0430	4.3	4.3	80	47	3,02
11.461.0440	4.4	4.4	80	47	3,02
11.461.0450	4.5	4.5	80	47	3,02
11.461.0460	4.6	4.6	80	47	3,40
11.461.0470	4.7	4.7	80	47	3,40
11.461.0480	4.8	4.8	86	52	3,40
11.461.0490	4.9	4.9	86	52	3,40
11.461.0500	5	5	86	52	3,63
11.461.0510	5.1	5.1	86	52	3,66
11.461.0520	5.2	5.2	86	52	3,66

Ref.	d1	d2	l1	l2	€
11.461.0530	5.3	5.3	86	52	4,33
11.461.0540	5.4	5.4	93	57	4,33
11.461.0550	5.5	5.5	93	57	4,33
11.461.0560	5.6	5.6	93	57	4,38
11.461.0570	5.7	5.7	93	57	4,38
11.461.0580	5.8	5.8	93	57	4,38
11.461.0590	5.9	5.9	93	57	4,38
11.461.0600	6	6	93	57	5,04
11.461.0610	6.1	6.1	101	63	5,00
11.461.0620	6.2	6.2	101	63	5,00
11.461.0630	6.3	6.3	101	63	5,04
11.461.0640	6.4	6.4	101	63	5,04
11.461.0650	6.5	6.5	101	63	5,11
11.461.0660	6.6	6.6	101	63	5,19
11.461.0670	6.7	6.7	101	63	5,28
11.461.0680	6.8	6.8	109	69	5,62
11.461.0690	6.9	6.9	109	69	5,62
11.461.0700	7	7	109	69	6,20
11.461.0710	7.1	7.1	109	69	6,47
11.461.0720	7.2	7.2	109	69	6,47
11.461.0730	7.3	7.3	109	69	6,47
11.461.0740	7.4	7.4	109	69	6,52
11.461.0750	7.5	7.5	109	69	6,52
11.461.0760	7.6	7.6	117	75	6,52
11.461.0770	7.7	7.7	117	75	7,02
11.461.0780	7.8	7.8	117	75	7,02
11.461.0790	7.9	7.9	117	75	7,02
11.461.0800	8	8	117	75	7,81
11.461.0810	8.1	8.1	117	75	8,69
11.461.0820	8.2	8.2	117	75	8,69
11.461.0830	8.3	8.3	117	75	9,41
11.461.0840	8.4	8.4	117	75	9,41
11.461.0850	8.5	8.5	117	75	9,41
11.461.0860	8.6	8.6	125	81	10,35
11.461.0870	8.7	8.7	125	81	10,35
11.461.0880	8.8	8.8	125	81	10,35
11.461.0890	8.9	8.9	125	81	10,35
11.461.0900	9	9	125	81	10,35
11.461.0910	9.1	9.1	125	81	10,83
11.461.0920	9.2	9.2	125	81	10,83
11.461.0930	9.3	9.3	125	81	11,51
11.461.0940	9.4	9.4	125	81	11,51
11.461.0950	9.5	9.5	125	81	11,51

Ref.	d1	d2	l1	l2	€
11.461.0960	9.6	9.6	133	87	11,68
11.461.0970	9.7	9.7	133	87	11,68
11.461.0980	9.8	9.8	133	87	11,92
11.461.0990	9.9	9.9	133	87	11,92
11.461.1000	10	10	133	87	12,04
11.461.1010	10.1	10.1	133	87	12,68
11.461.1020	10.2	10.2	133	87	12,91
11.461.1030	10.3	10.3	133	87	13,06
11.461.1040	10.4	10.4	133	87	13,06
11.461.1050	10.5	10.5	133	87	13,06
11.461.1060	10.6	10.6	133	87	14,75
11.461.1070	10.7	10.7	142	94	14,75
11.461.1080	10.8	10.8	142	94	14,75
11.461.1090	10.9	10.9	142	94	14,75
11.461.1100	11	11	142	94	13,66
11.461.1110	11.1	11.1	142	94	16,56
11.461.1120	11.2	11.2	142	94	16,56
11.461.1130	11.3	11.3	142	94	16,56
11.461.1140	11.4	11.4	142	94	16,56
11.461.1150	11.5	11.5	142	94	16,56
11.461.1160	11.6	11.6	142	94	17,09
11.461.1170	11.7	11.7	142	94	17,09
11.461.1180	11.8	11.8	142	94	17,09
11.461.1190	11.9	11.9	151	101	17,09
11.461.1200	12	12	151	101	16,83
11.461.1210	12.1	12.1	151	101	18,69
11.461.1220	12.2	12.2	151	101	18,69
11.461.1230	12.3	12.3	151	101	18,69
11.461.1240	12.4	12.4	151	101	18,83
11.461.1250	12.5	12.5	151	101	19,85
11.461.1260	12.6	12.6	151	101	21,04
11.461.1270	12.7	12.7	151	101	21,04
11.461.1280	12.8	12.8	151	101	21,04
11.461.1290	12.9	12.9	151	101	21,04
11.461.1300	13	13	151	101	20,59
11.461.1350	13.5	13.5	160	108	32,40
11.461.1400	14	14	160	108	32,40
11.461.1450	14.5	14.5	169	114	38,25
11.461.1500	15	15	169	114	38,25
11.461.1550	15.5	15.5	178	120	44,35
11.461.1600	16	16	178	120	44,35

> 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



HSS-E	DIN 338	N		 ^{>3}		ECO PRO	
P 11	P 12	P 13	M 21	K 31	K 32	N 51	N 52
≤500 N/mm ²	≤550 N/mm ²	<1000 N/mm ²	INOX ≤850 N/mm ²	GG	GGG GTS-GTW	Cu	CuAlFe
28-35	30-36	20-27	14-18	30-35	24-30	30-40	8-15

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

Ref.	d1	d2	l1	l2	€
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

Ref.	d1	d2	l1	l2	€
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** INTERNATIONAL
TOOLS

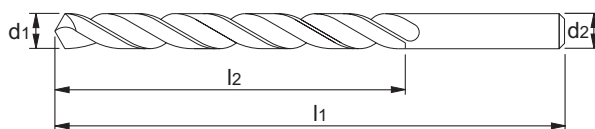
Ref.	d1	d2	l1	l2	€
11.490.0280	2.8	2.8	61	33	1,10
11.490.0290	2.9	2.9	61	33	1,10
11.490.0300	3	3	61	33	1,15
11.490.0310	3.1	3.1	65	36	1,35
11.490.0320	3.2	3.2	65	36	1,35
11.490.0330	3.3	3.3	65	36	1,45
11.490.0340	3.4	3.4	70	39	1,45
11.490.0350	3.5	3.5	70	39	1,50
11.490.0360	3.6	3.6	70	39	1,80
11.490.0370	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	1,57
11.490.0410	4.1	4.1	75	43	2,00
11.490.0420	4.2	4.2	75	43	2,00
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	1,78
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	2,19
11.490.0510	5.1	5.1	86	52	3,09
11.490.0520	5.2	5.2	86	52	3,09
11.490.0530	5.3	5.3	86	52	3,09
11.490.0540	5.4	5.4	93	57	3,09

Ref.	d1	d2	l1	l2	€
11.490.0550	5.5	5.5	93	57	2,73
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	2,95
11.490.0590	5.9	5.9	93	57	3,49
11.490.0600	6	6	93	57	2,95
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	3,68
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	4,32
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	4,90
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	6,86
11.490.0790	7.9	7.9	117	75	6,86
11.490.0800	8	8	117	75	6,13
11.490.0810	8.1	8.1	117	75	8,74

Ref.	d1	d2	l1	l2	€
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	6,92
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	7,77
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	8,73
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	10,22
11.490.1020	10.2	10.2	133	87	10,85
11.490.1050	10.5	10.5	133	87	10,85
11.490.1100	11	11	142	94	12,60
11.490.1150	11.5	11.5	142	94	13,60
11.490.1200	12	12	151	101	15,87
11.490.1250	12.5	12.5	151	101	16,61
11.490.1300	13	13	151	101	17,96

> 11.500 Phantom

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



Ref.	d1	d2	l1	l2	€
11.500.0020	0.2	0.2	19	2.5	3,84
11.500.0025	0.25	0.25	19	3	3,79
11.500.0030	0.3	0.3	19	3	3,47
11.500.0040	0.4	0.4	20	5	3,02
11.500.0045	0.45	0.45	20	5	2,98
11.500.0050	0.5	0.5	22	6	2,86
11.500.0060	0.6	0.6	24	7	2,74
11.500.0065	0.65	0.65	26	8	2,74
11.500.0070	0.7	0.7	28	9	2,74
11.500.0075	0.75	0.75	28	9	2,74
11.500.0080	0.8	0.8	30	10	2,62
11.500.0090	0.9	0.9	32	11	2,48
11.500.0095	0.95	0.95	32	11	2,48
11.500.0100	1	1	34	12	2,48
11.500.0110	1.1	1.1	36	14	2,96
11.500.0120	1.2	1.2	38	16	2,96
11.500.0125	1.25	1.25	38	16	2,96
11.500.0130	1.3	1.3	38	16	2,96
11.500.0140	1.4	1.4	40	18	2,96
11.500.0150	1.5	1.5	40	18	2,48
11.500.0160	1.6	1.6	43	20	3,07
11.500.0170	1.7	1.7	43	20	3,07
11.500.0175	1.75	1.75	46	22	3,07
11.500.0180	1.8	1.8	46	22	3,07
11.500.0190	1.9	1.9	46	22	3,07
11.500.0200	2	2	49	24	2,30
11.500.0205	2.05	2.05	49	24	4,13
11.500.0210	2.1	2.1	49	24	4,13
11.500.0220	2.2	2.2	53	27	4,13
11.500.0225	2.25	2.25	53	27	4,13
11.500.0230	2.3	2.3	53	27	4,13
11.500.0240	2.4	2.4	57	30	4,13
11.500.0250	2.5	2.5	57	30	2,34
11.500.0260	2.6	2.6	57	30	4,69
11.500.0270	2.7	2.7	61	33	4,69
11.500.0275	2.75	2.75	61	33	4,69
11.500.0280	2.8	2.8	61	33	3,61

Ref.	d1	d2	l1	l2	€
11.500.0290	2.9	2.9	61	33	3,61
11.500.0300	3	3	61	33	2,54
11.500.0310	3.1	3.1	65	36	3,00
11.500.0320	3.2	3.2	65	36	3,00
11.500.0325	3.25	3.25	65	36	3,02
11.500.0330	3.3	3.3	65	36	3,00
11.500.0340	3.4	3.4	70	39	4,33
11.500.0350	3.5	3.5	70	39	2,96
11.500.0360	3.6	3.6	70	39	3,61
11.500.0370	3.7	3.7	70	39	3,61
11.500.0375	3.75	3.75	70	39	3,66
11.500.0380	3.8	3.8	75	43	3,94
11.500.0390	3.9	3.9	75	43	3,94
11.500.0400	4	4	75	43	3,11
11.500.0410	4.1	4.1	75	43	4,03
11.500.0420	4.2	4.2	75	43	4,03
11.500.0425	4.25	4.25	75	43	4,03
11.500.0430	4.3	4.3	80	47	4,77
11.500.0440	4.4	4.4	80	47	4,77
11.500.0450	4.5	4.5	80	47	3,38
11.500.0460	4.6	4.6	80	47	5,70
11.500.0465	4.65	4.65	80	47	5,80
11.500.0470	4.7	4.7	80	47	5,70
11.500.0475	4.75	4.75	80	47	5,70
11.500.0480	4.8	4.8	86	52	4,52
11.500.0490	4.9	4.9	86	52	4,52
11.500.0500	5	5	86	52	3,79
11.500.0510	5.1	5.1	86	52	5,69
11.500.0520	5.2	5.2	86	52	5,69
11.500.0525	5.25	5.25	86	52	5,69
11.500.0530	5.3	5.3	86	52	5,69
11.500.0540	5.4	5.4	93	57	5,69
11.500.0550	5.5	5.5	93	57	4,49
11.500.0555	5.55	5.55	93	57	6,20
11.500.0560	5.6	5.6	93	57	6,20
11.500.0570	5.7	5.7	93	57	6,20
11.500.0575	5.75	5.75	93	57	6,20

Ref.	d1	d2	l1	l2	€
11.500.0580	5.8	5.8	93	57	6,20
11.500.0590	5.9	5.9	93	57	6,20
11.500.0600	6	6	93	57	5,03
11.500.0610	6.1	6.1	101	63	8,03
11.500.0620	6.2	6.2	101	63	8,03
11.500.0625	6.25	6.25	101	63	8,18
11.500.0630	6.3	6.3	101	63	8,18
11.500.0635	6.35	6.35	101	63	8,18
11.500.0640	6.4	6.4	101	63	8,18
11.500.0650	6.5	6.5	101	63	6,10
11.500.0660	6.6	6.6	101	63	9,77
11.500.0670	6.7	6.7	101	63	9,77
11.500.0675	6.75	6.75	109	69	9,77
11.500.0680	6.8	6.8	109	69	8,70
11.500.0690	6.9	6.9	109	69	9,77
11.500.0700	7	7	109	69	7,06
11.500.0710	7.1	7.1	109	69	15,00
11.500.0720	7.2	7.2	109	69	15,00
11.500.0725	7.25	7.25	109	69	14,09
11.500.0730	7.3	7.3	109	69	14,09
11.500.0740	7.4	7.4	109	69	14,09
11.500.0750	7.5	7.5	109	69	8,07
11.500.0760	7.6	7.6	117	75	15,60
11.500.0770	7.7	7.7	117	75	15,60
11.500.0775	7.75	7.75	117	75	11,37
11.500.0780	7.8	7.8	117	75	11,37
11.500.0790	7.9	7.9	117	75	11,37
11.500.0800	8	8	117	75	8,80
11.500.0810	8.1	8.1	117	75	15,00
11.500.0820	8.2	8.2	117	75	15,00
11.500.0825	8.25	8.25	117	75	14,59
11.500.0830	8.3	8.3	117	75	14,59
11.500.0840	8.4	8.4	117	75	14,59
11.500.0850	8.5	8.5	117	75	10,64
11.500.0860	8.6	8.6	125	81	18,68
11.500.0870	8.7	8.7	125	81	18,68
11.500.0875	8.75	8.75	125	81	18,68

</

> 11.500 Phantom

Ref.	d1	d2	l1	l2	€
11.500.0880	8.8	8.8	125	81	18,68
11.500.0890	8.9	8.9	125	81	18,68
11.500.0900	9	9	125	81	11,70
11.500.0910	9.1	9.1	125	81	21,33
11.500.0920	9.2	9.2	125	81	21,33
11.500.0925	9.25	9.25	125	81	21,33
11.500.0930	9.3	9.3	125	81	21,33
11.500.0940	9.4	9.4	125	81	21,33
11.500.0950	9.5	9.5	125	81	12,90
11.500.0960	9.6	9.6	133	87	24,66
11.500.0970	9.7	9.7	133	87	24,66
11.500.0975	9.75	9.75	133	87	18,48
11.500.0980	9.8	9.8	133	87	18,48
11.500.0990	9.9	9.9	133	87	18,48
11.500.1000	10	10	133	87	14,88
11.500.1010	10.1	10.1	133	87	18,48
11.500.1020	10.2	10.2	133	87	18,48
11.500.1025	10.25	10.25	133	87	18,74
11.500.1030	10.3	10.3	133	87	18,48
11.500.1040	10.4	10.4	133	87	18,48
11.500.1050	10.5	10.5	133	87	16,79
11.500.1060	10.6	10.6	133	87	18,66

Ref.	d1	d2	l1	l2	€
11.500.1070	10.7	10.7	142	94	18,66
11.500.1080	10.8	10.8	142	94	16,79
11.500.1100	11	11	142	94	17,88
11.500.1110	11.1	11.1	142	94	20,80
11.500.1120	11.2	11.2	142	94	20,80
11.500.1130	11.3	11.3	142	94	21,10
11.500.1140	11.4	11.4	142	94	21,10
11.500.1150	11.5	11.5	142	94	20,80
11.500.1160	11.6	11.6	142	94	21,70
11.500.1170	11.7	11.7	142	94	21,70
11.500.1175	11.75	11.75	142	94	20,05
11.500.1180	11.8	11.8	142	94	20,05
11.500.1190	11.9	11.9	151	101	21,70
11.500.1200	12	12	151	101	20,91
11.500.1210	12.1	12.1	151	101	23,86
11.500.1220	12.2	12.2	151	101	22,48
11.500.1230	12.3	12.3	151	101	23,86
11.500.1240	12.4	12.4	151	101	23,86
11.500.1250	12.5	12.5	151	101	23,07
11.500.1260	12.6	12.6	151	101	24,36
11.500.1270	12.7	12.7	151	101	24,36
11.500.1280	12.8	12.8	151	101	24,36

Ref.	d1	d2	l1	l2	€
11.500.1290	12.9	12.9	151	101	24,36
11.500.1300	13	13	151	101	22,94
11.500.1310	13.1	13.1	151	101	38,85
11.500.1350	13.5	13.5	160	108	38,85
11.500.1400	14	14	160	108	40,35
11.500.1450	14.5	14.5	169	114	46,85
11.500.1500	15	15	169	114	50,80
11.500.1510	15.1	15.1	178	120	54,60
11.500.1550	15.5	15.5	178	120	54,60
11.500.1600	16	16	178	120	54,60
11.500.1650	16.5	16.5	184	125	59,30
11.500.1690	16.9	16.9	184	125	58,20
11.500.1700	17	17	184	125	58,20
11.500.1750	17.5	17.5	191	130	61,70
11.500.1800	18	18	191	130	65,90
11.500.1850	18.5	18.5	198	135	78,15
11.500.1890	18.9	18.9	198	135	76,60
11.500.1900	19	19	198	135	76,60
11.500.1950	19.5	19.5	205	140	83,35
11.500.2000	20	20	205	140	90,65

> 11.506 Phantom

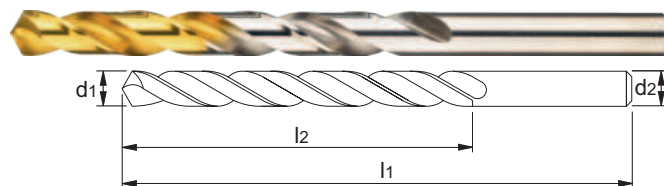
NL HSS-E Spiraalboor TiN-tip, (handgebruik)

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 5600 N/mm²	P 12 5850 N/mm²	P 13 <1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤560N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 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	2,82
11.506.0120	1.2	1.2	38	16	3,54
11.506.0150	1.5	1.5	40	18	2,82
11.506.0160	1.6	1.6	43	20	3,62
11.506.0200	2	2	49	24	2,56
11.506.0210	2.1	2.1	49	24	4,35
11.506.0220	2.2	2.2	53	27	4,35
11.506.0230	2.3	2.3	53	27	4,35
11.506.0240	2.4	2.4	57	30	4,35
11.506.0250	2.5	2.5	57	30	2,70
11.506.0260	2.6	2.6	57	30	5,24
11.506.0270	2.7	2.7	61	33	5,24
11.506.0280	2.8	2.8	61	33	4,04
11.506.0290	2.9	2.9	61	33	4,04
11.506.0300	3	3	61	33	2,95
11.506.0310	3.1	3.1	65	36	3,33
11.506.0320	3.2	3.2	65	36	3,35
11.506.0330	3.3	3.3	65	36	3,35
11.506.0340	3.4	3.4	70	39	5,01
11.506.0350	3.5	3.5	70	39	3,37

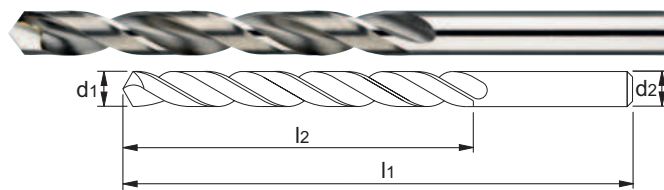
Ref.	d1	d2	l1	l2	€
11.506.0360	3.6	3.6	70	39	4,07
11.506.0370	3.7	3.7	70	39	4,07
11.506.0380	3.8	3.8	75	43	4,07
11.506.0390	3.9	3.9	75	43	4,07
11.506.0400	4	4	75	43	3,48
11.506.0410	4.1	4.1	75	43	4,19
11.506.0420	4.2	4.2	75	43	3,74
11.506.0430	4.3	4.3	80	47	5,25
11.506.0450	4.5	4.5	80	47	3,74
11.506.0470	4.7	4.7	80	47	6,95
11.506.0480	4.8	4.8	86	52	5,48
11.506.0490	4.9	4.9	86	52	5,48
11.506.0500	5	5	86	52	4,26
11.506.0510	5.1	5.1	86	52	7,30
11.506.0520	5.2	5.2	86	52	7,30
11.506.0530	5.3	5.3	86	52	7,30
11.506.0550	5.5	5.5	93	57	4,94
11.506.0570	5.7	5.7	93	57	7,55
11.506.0580	5.8	5.8	93	57	7,55
11.506.0600	6	6	93	57	5,80

Ref.	d1	d2	l1	l2	€
11.506.0610	6.1	6.1	101	63	9,56
11.506.0620	6.2	6.2	101	63	9,56
11.506.0630	6.3	6.3	101	63	9,56
11.506.0650	6.5	6.5	101	63	6,91
11.506.0670	6.7	6.7	101	63	11,21
11.506.0680	6.8	6.8	109	69	7,94
11.506.0700	7	7	109	69	7,97
11.506.0750	7.5	7.5	109	69	9,10
11.506.0800	8	8	117	75	9,91
11.506.0850	8.5	8.5	117	75	11,83
11.506.0900	9	9	125	81	13,00
11.506.0950	9.5	9.5	125	81	14,41
11.506.1000	10	10	133	87	16,65
11.506.1020	10.2	10.2	133	87	18,58
11.506.1050	10.5	10.5	133	87	18,58
11.506.1100	11	11	142	94	19,20
11.506.1150	11.5	11.5	142	94	22,42
11.506.1200	12	12	151	101	23,05
11.506.1250	12.5	12.5	151	101	25,35
11.506.1300	13	13	151	101	26,00



> 11.600 Phantom

NL HM-tip Spiraalboor
FR Foret à plaquette carbure
ES Broca con punta de carburo
DE Hartmetallbestückt Spiralbohrer
EN Carbide Tipped Twist drill



P 11	P 12	P 13	P 14	H 15	M 21	M 22	K 31	K 32	N 42	N 52	N 62	S 71	S 72
≤500 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	HRC	INOX >850N/mm ²	INOX >850N/mm ²	GG	GGG GTS-GTW	Alu Si>10%	CuAlFe	GFK/CFK	Ni/Co	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
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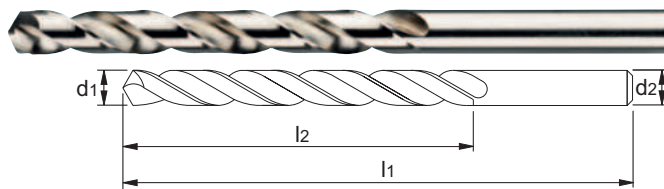
Ref.	d1	d2	l1	l2	€
11.600.0200	2	2	49	24	21,28
11.600.0210	2.1	2.1	49	24	21,28
11.600.0220	2.2	2.2	53	27	21,28
11.600.0230	2.3	2.3	53	27	21,28
11.600.0240	2.4	2.4	57	30	21,28
11.600.0250	2.5	2.5	57	30	21,28
11.600.0260	2.6	2.6	57	30	21,28
11.600.0270	2.7	2.7	61	33	21,28
11.600.0280	2.8	2.8	61	33	21,28
11.600.0290	2.9	2.9	61	33	21,28
11.600.0300	3	3	61	33	19,64
11.600.0310	3.1	3.1	65	36	21,28
11.600.0320	3.2	3.2	65	36	21,28
11.600.0330	3.3	3.3	65	36	21,28
11.600.0340	3.4	3.4	70	39	21,28
11.600.0350	3.5	3.5	70	39	20,01
11.600.0360	3.6	3.6	70	39	21,28
11.600.0370	3.7	3.7	70	39	21,28
11.600.0380	3.8	3.8	75	43	21,28
11.600.0390	3.9	3.9	75	43	21,28
11.600.0400	4	4	75	43	19,16
11.600.0410	4.1	4.1	75	43	21,28
11.600.0420	4.2	4.2	75	43	21,28
11.600.0430	4.3	4.3	80	47	21,28
11.600.0440	4.4	4.4	80	47	21,28
11.600.0450	4.5	4.5	80	47	19,64
11.600.0460	4.6	4.6	80	47	21,28
11.600.0470	4.7	4.7	80	47	21,28
11.600.0480	4.8	4.8	86	52	21,28
11.600.0490	4.9	4.9	86	52	21,28
11.600.0500	5	5	86	52	19,16
11.600.0510	5.1	5.1	86	52	23,03

Ref.	d1	d2	l1	l2	€
11.600.0520	5.2	5.2	86	52	23,03
11.600.0530	5.3	5.3	86	52	23,03
11.600.0540	5.4	5.4	93	57	23,03
11.600.0550	5.5	5.5	93	57	20,47
11.600.0560	5.6	5.6	93	57	23,45
11.600.0570	5.7	5.7	93	57	23,45
11.600.0580	5.8	5.8	93	57	23,45
11.600.0590	5.9	5.9	93	57	23,45
11.600.0600	6	6	93	57	21,66
11.600.0610	6.1	6.1	101	63	24,00
11.600.0620	6.2	6.2	101	63	24,00
11.600.0630	6.3	6.3	101	63	24,00
11.600.0635	6.35	6.35	101	63	20,81
11.600.0640	6.4	6.4	101	63	23,76
11.600.0650	6.5	6.5	101	63	21,97
11.600.0660	6.6	6.6	101	63	26,25
11.600.0670	6.7	6.7	101	63	26,25
11.600.0680	6.8	6.8	109	69	26,25
11.600.0690	6.9	6.9	109	69	26,25
11.600.0700	7	7	109	69	24,56
11.600.0710	7.1	7.1	109	69	27,60
11.600.0720	7.2	7.2	109	69	27,60
11.600.0730	7.3	7.3	109	69	27,60
11.600.0740	7.4	7.4	109	69	27,60
11.600.0750	7.5	7.5	109	69	25,85
11.600.0760	7.6	7.6	117	75	29,25
11.600.0770	7.7	7.7	117	75	29,25
11.600.0780	7.8	7.8	117	75	29,25
11.600.0790	7.9	7.9	117	75	29,25
11.600.0800	8	8	117	75	27,60
11.600.0810	8.1	8.1	117	75	30,20
11.600.0820	8.2	8.2	117	75	30,20

Ref.	d1	d2	l1	l2	€
11.600.0830	8.3	8.3	117	75	30,20
11.600.0840	8.4	8.4	117	75	30,20
11.600.0850	8.5	8.5	117	75	28,90
11.600.0860	8.6	8.6	125	81	33,20
11.600.0870	8.7	8.7	125	81	33,20
11.600.0880	8.8	8.8	125	81	33,20
11.600.0890	8.9	8.9	125	81	33,20
11.600.0900	9	9	125	81	31,85
11.600.0910	9.1	9.1	125	81	36,65
11.600.0920	9.2	9.2	125	81	36,65
11.600.0930	9.3	9.3	125	81	36,65
11.600.0940	9.4	9.4	125	81	36,65
11.600.0950	9.5	9.5	125	81	35,80
11.600.0960	9.6	9.6	133	87	39,15
11.600.0970	9.7	9.7	133	87	39,15
11.600.0980	9.8	9.8	133	87	39,15
11.600.0990	9.9	9.9	133	87	39,15
11.600.1000	10	10	133	87	37,10
11.600.1020	10.2	10.2	133	87	43,45
11.600.1050	10.5	10.5	133	87	41,90
11.600.1100	11	11	142	94	44,45
11.600.1150	11.5	11.5	142	94	47,45
11.600.1200	12	12	151	101	51,30
11.600.1250	12.5	12.5	151	101	54,90
11.600.1300	13	13	151	101	59,85
11.600.1350	13.5	13.5	160	108	65,25
11.600.1400	14	14	160	108	66,85
11.600.1450	14.5	14.5	169	114	74,15
11.600.1500	15	15	169	114	82,50
11.600.1550	15.5	15.5	178	120	91,95
11.600.1600	16	16	178	120	95,85

> 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



P 14	M 21	M 22	S 71	S 72
≤1400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	Ni/Co	Ti

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	4,50
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	3,98
11.760.0200	2	2	49	24	3,31
11.760.0210	2.1	2.1	49	24	3,49
11.760.0220	2.2	2.2	53	27	3,62
11.760.0230	2.3	2.3	53	27	3,62
11.760.0240	2.4	2.4	57	30	3,84
11.760.0250	2.5	2.5	57	30	3,62
11.760.0260	2.6	2.6	57	30	3,87

Ref.	d1	d2	l1	l2	€
11.760.0270	2.7	2.7	61	33	3,98
11.760.0280	2.8	2.8	61	33	3,78
11.760.0290	2.9	2.9	61	33	3,87
11.760.0300	3	3	61	33	3,62
11.760.0310	3.1	3.1	65	36	4,09
11.760.0320	3.2	3.2	65	36	3,90
11.760.0330	3.3	3.3	65	36	3,90
11.760.0340	3.4	3.4	70	39	4,09
11.760.0350	3.5	3.5	70	39	3,84
11.760.0360	3.6	3.6	70	39	4,12
11.760.0370	3.7	3.7	70	39	4,26
11.760.0380	3.8	3.8	75	43	4,27
11.760.0390	3.9	3.9	75	43	4,51
11.760.0400	4	4	75	43	4,23
11.760.0410	4.1	4.1	75	43	4,50
11.760.0420	4.2	4.2	75	43	4,50
11.760.0430	4.3	4.3	80	47	4,91

Ref.	d1	d2	l1	l2	€
11.760.0440	4.4	4.4	80	47	5,04
11.760.0450	4.5	4.5	80	47	4,68
11.760.0460	4.6	4.6	80	47	5,40
11.760.0470	4.7	4.7	80	47	5,16
11.760.0480	4.8	4.8	86	52	5,35
11.760.0490	4.9	4.9	86	52	5,40
11.760.0500	5	5	86	52	4,86
11.760.0510	5.1	5.1	86	52	5,49
11.760.0520	5.2	5.2	86	52	5,68
11.760.0530	5.3	5.3	86	52	5,80
11.760.0540	5.4	5.4	93	57	6,61
11.760.0550	5.5	5.5	93	57	6,56
11.760.0560	5.6	5.6	93	57	6,88
11.760.0570	5.7	5.7	93	57	6,88
11.760.0580	5.8	5.8	93	57	6,88
11.760.0590	5.9	5.9	93	57	6,88
11.760.0600	6	6	93	57	6,56

> 11.760 Phantom

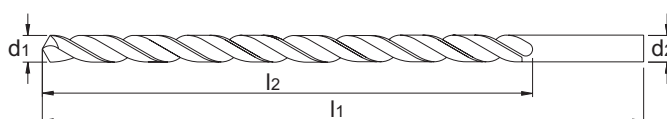
Ref.	d1	d2	l1	l2	€
11.760.0610	6.1	6.1	101	63	7,84
11.760.0620	6.2	6.2	101	63	7,84
11.760.0630	6.3	6.3	101	63	7,84
11.760.0640	6.4	6.4	101	63	8,10
11.760.0650	6.5	6.5	101	63	7,84
11.760.0660	6.6	6.6	101	63	8,03
11.760.0670	6.7	6.7	101	63	8,15
11.760.0680	6.8	6.8	109	69	8,74
11.760.0690	6.9	6.9	109	69	9,40
11.760.0700	7	7	109	69	8,88
11.760.0710	7.1	7.1	109	69	9,70
11.760.0720	7.2	7.2	109	69	10,68
11.760.0730	7.3	7.3	109	69	10,68
11.760.0740	7.4	7.4	109	69	10,21
11.760.0750	7.5	7.5	109	69	9,37
11.760.0760	7.6	7.6	117	75	11,70
11.760.0770	7.7	7.7	117	75	11,93
11.760.0780	7.8	7.8	117	75	10,80
11.760.0790	7.9	7.9	117	75	11,89
11.760.0800	8	8	117	75	10,00
11.760.0810	8.1	8.1	117	75	12,48
11.760.0820	8.2	8.2	117	75	11,87

Ref.	d1	d2	l1	l2	€
11.760.0830	8.3	8.3	117	75	12,45
11.760.0840	8.4	8.4	117	75	12,55
11.760.0850	8.5	8.5	117	75	11,65
11.760.0860	8.6	8.6	125	81	14,84
11.760.0870	8.7	8.7	125	81	14,84
11.760.0880	8.8	8.8	125	81	14,84
11.760.0890	8.9	8.9	125	81	15,54
11.760.0900	9	9	125	81	14,84
11.760.0910	9.1	9.1	125	81	15,54
11.760.0920	9.2	9.2	125	81	15,54
11.760.0930	9.3	9.3	125	81	15,54
11.760.0940	9.4	9.4	125	81	16,39
11.760.0950	9.5	9.5	125	81	15,67
11.760.0960	9.6	9.6	133	87	17,30
11.760.0970	9.7	9.7	133	87	17,68
11.760.0980	9.8	9.8	133	87	18,55
11.760.0990	9.9	9.9	133	87	18,92
11.760.1000	10	10	133	87	16,83
11.760.1020	10.2	10.2	133	87	19,05
11.760.1040	10.4	10.4	133	87	22,26
11.760.1050	10.5	10.5	133	87	19,68
11.760.1070	10.7	10.7	142	94	30,55

Ref.	d1	d2	l1	l2	€
11.760.1100	11	11	142	94	23,85
11.760.1120	11.2	11.2	142	94	27,15
11.760.1150	11.5	11.5	142	94	26,50
11.760.1200	12	12	151	101	29,70
11.760.1210	12.1	12.1	151	101	38,80
11.760.1230	12.3	12.3	151	101	38,80
11.760.1250	12.5	12.5	151	101	32,70
11.760.1300	13	13	151	101	36,60
11.760.1350	13.5	13.5	160	108	42,15
11.760.1400	14	14	160	108	45,95
11.760.1450	14.5	14.5	169	114	48,65
11.760.1500	15	15	169	114	53,95
11.760.1550	15.5	15.5	178	120	55,65
11.760.1600	16	16	178	120	62,65
11.760.1650	16.5	16.5	184	125	98,50
11.760.1700	17	17	184	125	96,60
11.760.1750	17.5	17.5	191	130	102,10
11.760.1800	18	18	191	130	91,95
11.760.1900	19	19	198	135	130,15
11.760.2000	20	20	205	140	161,70

> 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



HSS	DIN 340	N			ECO PRO		
P 11	P 12	P 13	K 31	K 32	N 42	N 51	N 61
5600 N/mm²	5850 N/mm²	51000 N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Cu	PVC
25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D

Ref.	d1	d2	l1	l2	€
11.813.0100	1	1	56	33	1,22
11.813.0110	1.1	1.1	60	37	1,22
11.813.0120	1.2	1.2	65	41	1,22
11.813.0130	1.3	1.3	65	41	1,22
11.813.0140	1.4	1.4	70	45	1,22
11.813.0150	1.5	1.5	70	45	1,26
11.813.0160	1.6	1.6	76	50	1,26
11.813.0170	1.7	1.7	76	50	1,26
11.813.0180	1.8	1.8	80	53	1,26
11.813.0190	1.9	1.9	80	53	1,26
11.813.0200	2	2	85	56	1,83
11.813.0210	2.1	2.1	85	56	1,92
11.813.0220	2.2	2.2	90	59	1,92
11.813.0230	2.3	2.3	90	59	1,92
11.813.0240	2.4	2.4	95	62	1,92
11.813.0250	2.5	2.5	95	62	1,92
11.813.0260	2.6	2.6	95	62	1,92
11.813.0270	2.7	2.7	100	66	1,92
11.813.0280	2.8	2.8	100	66	1,92
11.813.0290	2.9	2.9	100	66	1,92
11.813.0300	3	3	100	66	1,92
11.813.0310	3.1	3.1	106	69	2,56
11.813.0320	3.2	3.2	106	69	2,56

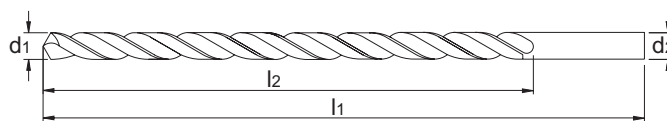
Ref.	d1	d2	l1	l2	€
11.813.0330	3.3	3.3	106	69	2,56
11.813.0340	3.4	3.4	112	73	2,56
11.813.0350	3.5	3.5	112	73	2,17
11.813.0360	3.6	3.6	112	73	2,71
11.813.0370	3.7	3.7	112	73	2,71
11.813.0380	3.8	3.8	119	78	2,71
11.813.0390	3.9	3.9	119	78	2,71
11.813.0400	4	4	119	78	2,31
11.813.0410	4.1	4.1	119	78	2,71
11.813.0420	4.2	4.2	119	78	2,71
11.813.0430	4.3	4.3	126	82	2,71
11.813.0440	4.4	4.4	126	82	2,71
11.813.0450	4.5	4.5	126	82	2,51
11.813.0460	4.6	4.6	126	82	3,14
11.813.0470	4.7	4.7	126	82	3,14
11.813.0480	4.8	4.8	132	87	3,14
11.813.0490	4.9	4.9	132	87	3,14
11.813.0500	5	5	132	87	3,14
11.813.0510	5.1	5.1	132	87	3,82
11.813.0520	5.2	5.2	132	87	3,82
11.813.0530	5.3	5.3	132	87	3,82
11.813.0540	5.4	5.4	139	91	3,82
11.813.0550	5.5	5.5	139	91	3,82

Ref.	d1	d2	l1	l2	€
11.813.0560	5.6	5.6	139	91	4,17
11.813.0570	5.7	5.7	139	91	4,17
11.813.0580	5.8	5.8	139	91	4,17
11.813.0590	5.9	5.9	139	91	4,17
11.813.0600	6	6	139	91	4,17
11.813.0650	6.5	6.5	148	97	4,86
11.813.0680	6.8	6.8	156	102	5,56
11.813.0700	7	7	156	102	5,56
11.813.0750	7.5	7.5	156	102	6,96
11.813.0800	8	8	165	109	8,34
11.813.0850	8.5	8.5	165	109	9,73
11.813.0900	9	9	175	115	11,10
11.813.0950	9.5	9.5	175	115	11,81
11.813.1000	10	10	184	121	13,53
11.813.1020	10.2	10.2	184	121	15,27
11.813.1050	10.5	10.5	184	121	15,27
11.813.1100	11	11	195	128	17,35
11.813.1150	11.5	11.5	195	128	18,74
11.813.1200	12	12	205	134	20,12
11.813.1250	12.5	12.5	205	134	22,22
11.813.1300	13	13	205	134	23,61



> 11.815 Phantom

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



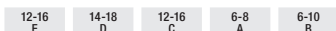
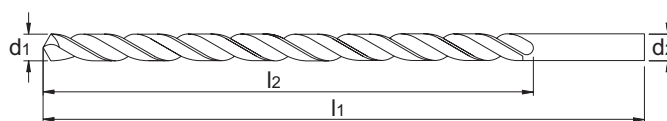
Ref.	d1	d2	l1	l2	€
11.815.0100	1	1	56	33	3,29
11.815.0110	1.1	1.1	60	37	5,70
11.815.0120	1.2	1.2	65	41	5,44
11.815.0130	1.3	1.3	65	41	5,01
11.815.0140	1.4	1.4	70	45	4,63
11.815.0150	1.5	1.5	70	45	4,32
11.815.0160	1.6	1.6	76	50	4,60
11.815.0170	1.7	1.7	76	50	4,60
11.815.0180	1.8	1.8	80	53	4,60
11.815.0190	1.9	1.9	80	53	4,60
11.815.0200	2	2	85	56	3,57
11.815.0210	2.1	2.1	85	56	4,07
11.815.0220	2.2	2.2	90	59	3,47
11.815.0230	2.3	2.3	90	59	3,71
11.815.0240	2.4	2.4	95	62	3,47
11.815.0250	2.5	2.5	95	62	2,76
11.815.0260	2.6	2.6	95	62	3,51
11.815.0270	2.7	2.7	100	66	3,96
11.815.0280	2.8	2.8	100	66	3,57
11.815.0290	2.9	2.9	100	66	4,18
11.815.0300	3	3	100	66	3,31
11.815.0310	3.1	3.1	106	69	3,85
11.815.0320	3.2	3.2	106	69	3,49
11.815.0330	3.3	3.3	106	69	3,73

Ref.	d1	d2	l1	l2	€
11.815.0340	3.4	3.4	112	73	4,22
11.815.0350	3.5	3.5	112	73	3,73
11.815.0360	3.6	3.6	112	73	4,13
11.815.0370	3.7	3.7	112	73	4,18
11.815.0380	3.8	3.8	119	78	4,09
11.815.0390	3.9	3.9	119	78	4,31
11.815.0400	4	4	119	78	3,96
11.815.0410	4.1	4.1	119	78	4,43
11.815.0420	4.2	4.2	119	78	3,96
11.815.0430	4.3	4.3	126	82	4,63
11.815.0440	4.4	4.4	126	82	4,82
11.815.0450	4.5	4.5	126	82	4,43
11.815.0460	4.6	4.6	126	82	5,01
11.815.0470	4.7	4.7	126	82	5,10
11.815.0480	4.8	4.8	132	87	5,10
11.815.0490	4.9	4.9	132	87	5,10
11.815.0500	5	5	132	87	4,56
11.815.0510	5.1	5.1	132	87	5,26
11.815.0520	5.2	5.2	132	87	5,10
11.815.0530	5.3	5.3	132	87	5,34
11.815.0540	5.4	5.4	139	91	6,55
11.815.0550	5.5	5.5	139	91	5,10
11.815.0560	5.6	5.6	139	91	6,36
11.815.0570	5.7	5.7	139	91	6,29

Ref.	d1	d2	l1	l2	€
11.815.0580	5.8	5.8	139	91	5,96
11.815.0590	5.9	5.9	139	91	6,81
11.815.0600	6	6	139	91	5,65
11.815.0620	6.2	6.2	148	97	9,75
11.815.0650	6.5	6.5	148	97	7,32
11.815.0680	6.8	6.8	156	102	9,14
11.815.0700	7	7	156	102	8,05
11.815.0750	7.5	7.5	156	102	9,57
11.815.0780	7.8	7.8	165	109	10,94
11.815.0800	8	8	165	109	9,85
11.815.0850	8.5	8.5	165	109	11,32
11.815.0880	8.8	8.8	175	115	14,86
11.815.0900	9	9	175	115	12,89
11.815.0950	9.5	9.5	175	115	14,62
11.815.0980	9.8	9.8	184	121	17,59
11.815.1000	10	10	184	121	14,22
11.815.1020	10.2	10.2	184	121	26,80
11.815.1050	10.5	10.5	184	121	19,01
11.815.1100	11	11	195	128	18,62
11.815.1150	11.5	11.5	195	128	22,35
11.815.1200	12	12	205	134	23,60
11.815.1250	12.5	12.5	205	134	25,30
11.815.1300	13	13	205	134	25,00

> 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



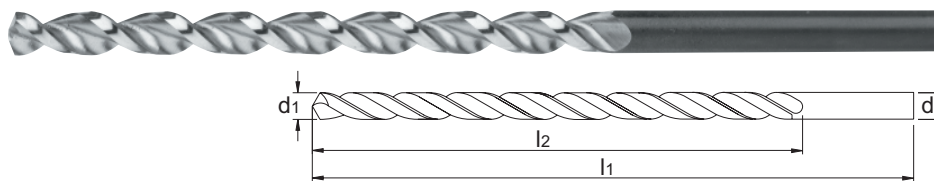
Ref.	d1	d2	l1	l2	€
11.820.0100	1	1	56	33	7,24
11.820.0150	1.5	1.5	70	45	7,11
11.820.0200	2	2	85	56	5,98
11.820.0250	2.5	2.5	95	62	6,09
11.820.0300	3	3	100	66	6,39
11.820.0310	3.1	3.1	106	69	7,31
11.820.0320	3.2	3.2	106	69	6,77
11.820.0350	3.5	3.5	112	73	7,27
11.820.0400	4	4	119	78	7,80
11.820.0410	4.1	4.1	119	78	8,76
11.820.0420	4.2	4.2	119	78	8,01
11.820.0450	4.5	4.5	126	82	9,04

Ref.	d1	d2	l1	l2	€
11.820.0500	5	5	132	87	9,27
11.820.0510	5.1	5.1	132	87	12,58
11.820.0520	5.2	5.2	132	87	10,23
11.820.0550	5.5	5.5	139	91	11,40
11.820.0600	6	6	139	91	11,92
11.820.0650	6.5	6.5	148	97	13,14
11.820.0670	6.7	6.7	148	97	18,93
11.820.0680	6.8	6.8	156	102	18,67
11.820.0700	7	7	156	102	14,91
11.820.0750	7.5	7.5	156	102	17,38
11.820.0800	8	8	165	109	17,38
11.820.0850	8.5	8.5	165	109	19,45

Ref.	d1	d2	l1	l2	€
11.820.0900	9	9	175	115	21,57
11.820.0950	9.5	9.5	175	115	25,70
11.820.1000	10	10	184	121	25,25
11.820.1050	10.5	10.5	184	121	33,90
11.820.1100	11	11	195	128	35,20
11.820.1110	11.1	11.1	195	128	71,10
11.820.1150	11.5	11.5	195	128	42,10
11.820.1200	12	12	205	134	43,90
11.820.1250	12.5	12.5	205	134	57,75
11.820.1300	13	13	205	134	49,70

> 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				130°
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 52 CuAlFe	N 61 PVC
22-24 E	14-22 E	20-25 E	18-22 E	40-45 F	30-36 E	18-21 E

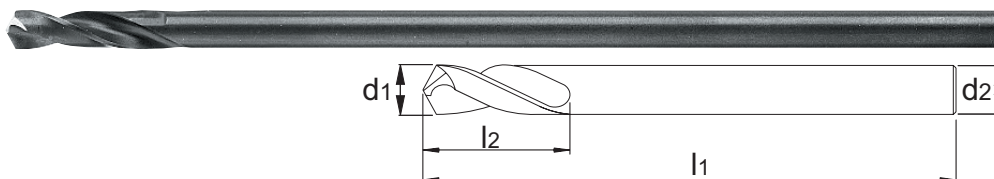
Ref.	d1	d2	l1	l2	€
11.860.0100	1	1	56	33	7,38
11.860.0150	1.5	1.5	70	45	5,48
11.860.0200	2	2	85	56	5,45
11.860.0210	2.1	2.1	85	56	5,52
11.860.0220	2.2	2.2	90	59	6,07
11.860.0230	2.3	2.3	90	59	6,07
11.860.0240	2.4	2.4	95	62	6,54
11.860.0250	2.5	2.5	95	62	5,61
11.860.0260	2.6	2.6	95	62	6,47
11.860.0270	2.7	2.7	100	66	6,66
11.860.0280	2.8	2.8	100	66	6,62
11.860.0290	2.9	2.9	100	66	6,92
11.860.0300	3	3	100	66	6,00
11.860.0310	3.1	3.1	106	69	7,39
11.860.0320	3.2	3.2	106	69	6,44
11.860.0330	3.3	3.3	106	69	6,88
11.860.0340	3.4	3.4	112	73	7,89
11.860.0350	3.5	3.5	112	73	6,66
11.860.0360	3.6	3.6	112	73	8,28
11.860.0370	3.7	3.7	112	73	8,05
11.860.0380	3.8	3.8	119	78	8,06
11.860.0390	3.9	3.9	119	78	8,06
11.860.0400	4	4	119	78	7,50
11.860.0410	4.1	4.1	119	78	8,28
11.860.0420	4.2	4.2	119	78	7,91
11.860.0430	4.3	4.3	126	82	9,09

Ref.	d1	d2	l1	l2	€
11.860.0440	4.4	4.4	126	82	9,19
11.860.0450	4.5	4.5	126	82	8,52
11.860.0460	4.6	4.6	126	82	9,45
11.860.0470	4.7	4.7	126	82	9,39
11.860.0480	4.8	4.8	132	87	9,31
11.860.0490	4.9	4.9	132	87	10,15
11.860.0500	5	5	132	87	8,73
11.860.0510	5.1	5.1	132	87	10,08
11.860.0520	5.2	5.2	132	87	10,38
11.860.0530	5.3	5.3	132	87	10,53
11.860.0540	5.4	5.4	139	91	11,03
11.860.0550	5.5	5.5	139	91	10,66
11.860.0560	5.6	5.6	139	91	12,32
11.860.0570	5.7	5.7	139	91	12,70
11.860.0580	5.8	5.8	139	91	12,72
11.860.0590	5.9	5.9	139	91	13,52
11.860.0600	6	6	139	91	11,14
11.860.0610	6.1	6.1	148	97	14,12
11.860.0620	6.2	6.2	148	97	14,27
11.860.0630	6.3	6.3	148	97	14,42
11.860.0640	6.4	6.4	148	97	15,03
11.860.0650	6.5	6.5	148	97	11,94
11.860.0660	6.6	6.6	148	97	14,53
11.860.0670	6.7	6.7	148	97	15,82
11.860.0680	6.8	6.8	156	102	14,84
11.860.0690	6.9	6.9	156	102	14,74

Ref.	d1	d2	l1	l2	€
11.860.0700	7	7	156	102	13,89
11.860.0710	7.1	7.1	156	102	22,68
11.860.0720	7.2	7.2	156	102	23,45
11.860.0730	7.3	7.3	156	102	23,83
11.860.0740	7.4	7.4	156	102	24,12
11.860.0750	7.5	7.5	156	102	16,77
11.860.0760	7.6	7.6	165	109	21,35
11.860.0770	7.7	7.7	165	109	25,05
11.860.0780	7.8	7.8	165	109	22,57
11.860.0790	7.9	7.9	165	109	22,97
11.860.0800	8	8	165	109	16,07
11.860.0850	8.5	8.5	165	109	19,87
11.860.0870	8.7	8.7	175	115	36,00
11.860.0900	9	9	175	115	19,75
11.860.0950	9.5	9.5	175	115	25,05
11.860.1000	10	10	184	121	23,82
11.860.1020	10.2	10.2	184	121	30,15
11.860.1050	10.5	10.5	184	121	30,30
11.860.1100	11	11	195	128	33,90
11.860.1150	11.5	11.5	195	128	40,75
11.860.1200	12	12	205	134	42,25
11.860.1250	12.5	12.5	205	134	45,00
11.860.1300	13	13	205	134	45,95
11.860.1400	14	14	214	140	54,05
11.860.1500	15	15	220	144	329,00
11.860.1600	16	16	227	149	206,50

> 11.890 Phantom

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



HSS		N						
P 11 ≤500 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
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

Ref.	d1	d2	l1	l2	€
11.890.4910	4.9	4.9	100	30	3,51
11.890.5007	5	5	70	30	2,78
11.890.5010	5	5	100	30	3,32
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

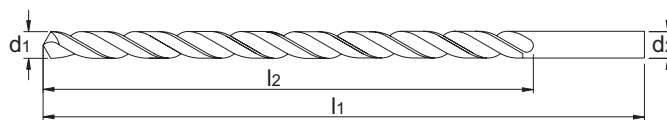
Ref.	d1	d2	l1	l2	€
11.890.5121	5.1	5.1	210	30	8,23
11.890.5310	5.3	5.3	100	30	3,82
11.890.5315	5.3	5.3	150	30	5,89
11.890.5321	5.3	5.3	210	30	8,23
11.890.5510	5.5	5.5	100	30	4,10
11.890.5515	5.5	5.5	150	30	5,89
11.890.5710	5.7	5.7	100	30	4,50

Ref.	d1	d2	l1	l2	€
11.890.5715	5.7	5.7	150	30	6,82
11.890.5721	5.7	5.7	210	30	9,56
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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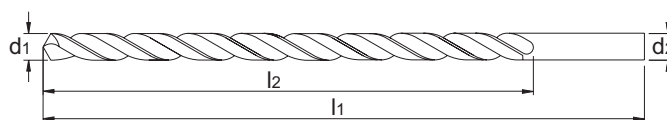
Ref.	d1	d2	l1	l2	€
11.900.0201	2	2	125	85	10,10
11.900.0251	2.5	2.5	140	95	9,26
11.900.0301	3	3	150	100	10,44
11.900.0303	3	3	190	130	13,99
11.900.0351	3.5	3.5	165	115	10,57
11.900.0353	3.5	3.5	210	145	15,26
11.900.0401	4	4	175	120	11,55
11.900.0403	4	4	220	150	15,65
11.900.0451	4.5	4.5	185	125	12,86
11.900.0453	4.5	4.5	235	160	18,32
11.900.0481	4.8	4.8	195	135	47,90
11.900.0501	5	5	195	135	13,38
11.900.0503	5	5	245	170	18,13

Ref.	d1	d2	l1	l2	€
11.900.0511	5.1	5.1	195	135	36,75
11.900.0551	5.5	5.5	205	140	15,51
11.900.0553	5.5	5.5	260	180	23,64
11.900.0581	5.8	5.8	205	140	45,75
11.900.0601	6	6	205	140	16,11
11.900.0603	6	6	260	180	23,83
11.900.0651	6.5	6.5	215	150	17,87
11.900.0653	6.5	6.5	275	190	26,35
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	33,50
11.900.0801	8	8	240	165	26,45

Ref.	d1	d2	l1	l2	€
11.900.0803	8	8	305	210	34,15
11.900.0851	8.5	8.5	240	165	33,10
11.900.0853	8.5	8.5	305	210	46,25
11.900.0901	9	9	250	175	36,85
11.900.0903	9	9	320	220	47,50
11.900.0951	9.5	9.5	250	175	42,25
11.900.0953	9.5	9.5	320	220	55,95
11.900.1001	10	10	265	185	39,95
11.900.1003	10	10	340	235	54,75
11.900.1101	11	11	280	195	68,60
11.900.1103	11	11	365	250	80,60
11.900.1201	12	12	295	205	77,20
11.900.1203	12	12	375	260	89,50

> 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 ≤600 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 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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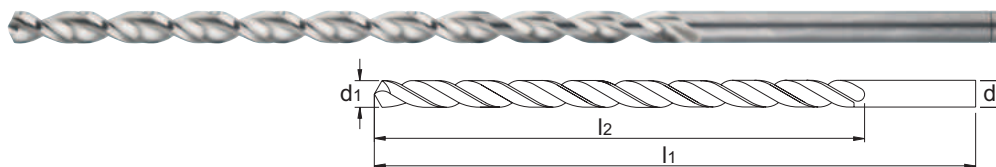
Ref.	d1	d2	l1	l2	€
11.920.0201	2	2	125	85	15,22
11.920.0251	2.5	2.5	140	95	14,47
11.920.0301	3	3	150	100	15,15
11.920.0303	3	3	190	130	23,45
11.920.0305	3	3	240	160	32,80
11.920.0351	3.5	3.5	165	115	16,47
11.920.0353	3.5	3.5	210	145	21,20
11.920.0355	3.5	3.5	265	180	31,65
11.920.0401	4	4	175	120	16,79
11.920.0403	4	4	220	150	21,20
11.920.0405	4	4	280	190	30,55
11.920.0407	4	4	400	300	151,50
11.920.0451	4.5	4.5	185	125	17,34
11.920.0453	4.5	4.5	235	160	24,15
11.920.0455	4.5	4.5	295	200	37,10
11.920.0501	5	5	195	135	18,56
11.920.0503	5	5	245	170	26,80
11.920.0505	5	5	315	210	40,30
11.920.0507	5	5	500	350	218,95
11.920.0551	5.5	5.5	205	140	19,55
11.920.0553	5.5	5.5	260	180	32,00
11.920.0557	5.5	5.5	330	225	46,30
11.920.0601	6	6	205	140	20,00

Ref.	d1	d2	l1	l2	€
11.920.0603	6	6	260	180	30,25
11.920.0605	6	6	330	225	45,35
11.920.0607	6	6	600	400	209,55
11.920.0608	6	6	500	400	69,85
11.920.0651	6.5	6.5	215	150	24,04
11.920.0653	6.5	6.5	275	190	36,50
11.920.0655	6.5	6.5	350	235	47,90
11.920.0701	7	7	225	155	26,50
11.920.0703	7	7	290	200	39,90
11.920.0705	7	7	370	250	55,65
11.920.0751	7.5	7.5	225	155	31,50
11.920.0753	7.5	7.5	290	200	44,55
11.920.0755	7.5	7.5	370	250	65,20
11.920.0801	8	8	240	165	31,75
11.920.0803	8	8	305	210	43,80
11.920.0805	8	8	390	265	59,05
11.920.0809	8	8	500	400	80,55
11.920.0851	8.5	8.5	240	165	34,60
11.920.0853	8.5	8.5	305	210	47,95
11.920.0901	9	9	250	175	46,75
11.920.0903	9	9	320	220	53,60
11.920.0905	9	9	410	280	77,45
11.920.0951	9.5	9.5	250	175	57,30

Ref.	d1	d2	l1	l2	€
11.920.0953	9.5	9.5	320	220	62,00
11.920.0955	9.5	9.5	410	280	97,10
11.920.1001	10	10	265	185	56,95
11.920.1003	10	10	340	235	63,30
11.920.1005	10	10	430	295	81,90
11.920.1008	10	10	600	500	108,90
11.920.1051	10.5	10.5	265	185	66,25
11.920.1053	10.5	10.5	340	235	70,05
11.920.1054	10.5	10.5	430	295	115,25
11.920.1101	11	11	280	195	78,25
11.920.1103	11	11	365	250	85,65
11.920.1104	11	11	455	310	121,35
11.920.1151	11.5	11.5	280	195	85,65
11.920.1153	11.5	11.5	365	250	102,00
11.920.1201	12	12	295	205	89,05
11.920.1203	12	12	375	260	101,65
11.920.1205	12	12	480	330	125,15
11.920.1206	12	12	600	500	153,85
11.920.1251	12.5	12.5	295	205	85,90
11.920.1253	12.5	12.5	375	260	94,15
11.920.1301	13	13	295	205	91,85
11.920.1303	13	13	375	260	99,55
11.920.1401	14	14	300	200	180,80

> 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/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 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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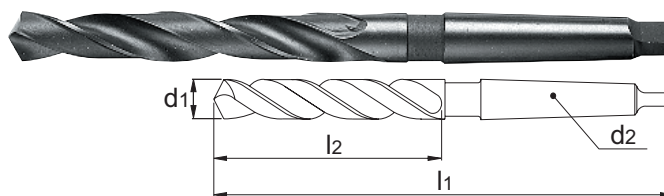
Ref.	d1	d2	l1	l2	€
11.940.0301	3	3	150	100	18,32
11.940.0303	3	3	190	130	29,05
11.940.0351	3.5	3.5	165	115	19,92
11.940.0353	3.5	3.5	210	145	25,65
11.940.0355	3.5	3.5	265	180	39,25
11.940.0401	4	4	175	120	20,74
11.940.0403	4	4	220	150	25,65
11.940.0405	4	4	280	190	37,70
11.940.0451	4.5	4.5	185	125	20,99
11.940.0453	4.5	4.5	235	160	29,95
11.940.0501	5	5	195	135	22,91
11.940.0503	5	5	245	170	33,20
11.940.0505	5	5	315	210	50,80
11.940.0551	5.5	5.5	205	140	24,11
11.940.0553	5.5	5.5	260	180	39,45
11.940.0601	6	6	205	140	24,69

Ref.	d1	d2	l1	l2	€
11.940.0603	6	6	260	180	36,65
11.940.0605	6	6	330	225	56,15
11.940.0651	6.5	6.5	215	150	29,10
11.940.0653	6.5	6.5	275	190	44,15
11.940.0701	7	7	225	155	32,10
11.940.0703	7	7	290	200	49,30
11.940.0705	7	7	370	250	67,40
11.940.0751	7.5	7.5	225	155	38,20
11.940.0753	7.5	7.5	290	200	54,90
11.940.0801	8	8	240	165	39,40
11.940.0803	8	8	305	210	53,05
11.940.0805	8	8	390	265	73,15
11.940.0851	8.5	8.5	240	165	41,85
11.940.0853	8.5	8.5	305	210	58,05
11.940.0901	9	9	250	175	56,60
11.940.0903	9	9	320	220	64,95

Ref.	d1	d2	l1	l2	€
11.940.0905	9	9	410	280	93,75
11.940.0951	9.5	9.5	250	175	69,25
11.940.0953	9.5	9.5	320	220	75,10
11.940.1001	10	10	265	185	68,85
11.940.1003	10	10	340	235	76,60
11.940.1005	10	10	430	295	99,05
11.940.1101	11	11	280	195	94,75
11.940.1103	11	11	365	250	103,75
11.940.1104	11	11	455	310	146,90
11.940.1201	12	12	295	205	110,65
11.940.1203	12	12	375	260	122,95
11.940.1205	12	12	480	330	151,50
11.940.1301	13	13	295	205	132,60
11.940.1303	13	13	375	260	147,35

> 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



P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW
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20-25 E	20-25 E	15-20 D	15-20 E	25-30 E
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Ref.	d1	d2	l1	l2	€
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
12.400.0975	9.75	MK 1	168	87	3,10
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
12.400.1125	11.25	MK 1	175	94	3,10
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
12.400.1675	16.75	MK 2	223	125	5,30
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
12.400.1825	18.25	MK 2	233	135	5,62
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
12.400.2200	22	MK 2	248	150	19,51

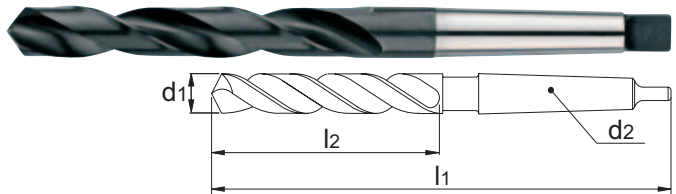
Ref.	d1	d2	l1	l2	€
12.400.2225	22.25	MK 2	248	150	8,43
12.400.2250	22.5	MK 2	253	155	19,51
12.400.2300	23	MK 2	253	155	21,77
12.400.2325	23.25	MK 3	276	155	10,82
12.400.2350	23.5	MK 3	276	155	24,34
12.400.2400	24	MK 3	281	160	24,85
12.400.2450	24.5	MK 3	281	160	24,87
12.400.2500	25	MK 3	281	160	25,60
12.400.2550	25.5	MK 3	286	165	25,60
12.400.2575	25.75	MK 3	286	165	13,81
12.400.2600	26	MK 3	286	165	29,50
12.400.2625	26.25	MK 3	286	165	13,81
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
12.400.2875	28.75	MK 3	296	175	16,91
12.400.2900	29	MK 3	296	175	35,70
12.400.2925	29.25	MK 3	296	175	16,91
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
12.400.3125	31.25	MK 3	301	180	22,05
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

Ref.	d1	d2	l1	l2	€
12.400.3550	35.5	MK 4	339	190	81,35
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
12.400.4750	47.5	MK 4	364	215	65,95
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
12.400.5100	51	MK 5	412	225	66,15



> 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	l1	l2	€
12.440.0325	3.25	MK 1	117	36	25,85
12.440.0375	3.75	MK 1	120	39	18,48
12.440.0475	4.75	MK 1	128	47	28,60
12.440.0500	5	MK 1	133	52	53,40
12.440.0550	5.5	MK 1	138	57	60,20
12.440.0600	6	MK 1	138	57	56,35
12.440.0625	6.25	MK 1	144	63	78,50
12.440.0650	6.5	MK 1	144	63	62,20
12.440.0675	6.75	MK 1	150	69	67,05
12.440.0700	7	MK 1	150	69	64,10
12.440.0725	7.25	MK 1	150	69	22,03
12.440.0750	7.5	MK 1	150	69	65,95
12.440.0775	7.75	MK 1	156	75	53,00
12.440.0800	8	MK 1	156	75	36,80
12.440.0825	8.25	MK 1	156	75	53,40
12.440.0850	8.5	MK 1	156	75	38,80
12.440.0875	8.75	MK 1	162	81	45,55
12.440.0900	9	MK 1	162	81	38,65
12.440.0925	9.25	MK 1	162	81	57,40
12.440.0950	9.5	MK 1	162	81	42,95
12.440.0975	9.75	MK 1	168	87	56,10
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	31,90
12.440.1075	10.75	MK 1	175	94	52,15
12.440.1100	11	MK 1	175	94	39,45
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	52,45
12.440.1200	12	MK 1	182	101	41,45
12.440.1225	12.25	MK 1	182	101	51,65
12.440.1250	12.5	MK 1	182	101	35,55
12.440.1275	12.75	MK 1	182	101	49,65
12.440.1300	13	MK 1	182	101	39,15
12.440.1325	13.25	MK 1	189	108	48,95
12.440.1350	13.5	MK 1	189	108	43,80
12.440.1375	13.75	MK 1	189	108	46,70
12.440.1400	14	MK 1	189	108	41,85
12.440.1425	14.25	MK 2	212	114	54,95
12.440.1450	14.5	MK 2	212	114	48,25
12.440.1475	14.75	MK 2	212	114	58,60
12.440.1500	15	MK 2	212	114	48,25
12.440.1525	15.25	MK 2	218	120	54,25
12.440.1550	15.5	MK 2	218	120	51,25
12.440.1575	15.75	MK 2	218	120	54,70
12.440.1600	16	MK 2	218	120	51,25
12.440.1625	16.25	MK 2	223	125	65,15
12.440.1650	16.5	MK 2	223	125	56,20
12.440.1675	16.75	MK 2	223	125	62,15
12.440.1700	17	MK 2	223	125	57,70
12.440.1725	17.25	MK 2	228	130	65,10
12.440.1750	17.5	MK 2	228	130	62,20

Ref.	d1	d2	l1	l2	€
12.440.1775	17.75	MK 2	228	130	68,40
12.440.1800	18	MK 2	228	130	62,20
12.440.1825	18.25	MK 2	233	135	70,65
12.440.1850	18.5	MK 2	233	135	68,10
12.440.1875	18.75	MK 2	233	135	74,40
12.440.1900	19	MK 2	233	135	68,10
12.440.1925	19.25	MK 2	238	140	79,30
12.440.1950	19.5	MK 2	238	140	76,45
12.440.1975	19.75	MK 2	238	140	80,75
12.440.2000	20	MK 2	238	140	74,10
12.440.2025	20.25	MK 2	243	145	84,15
12.440.2050	20.5	MK 2	243	145	80,45
12.440.2075	20.75	MK 2	243	145	87,65
12.440.2100	21	MK 2	243	145	82,50
12.440.2125	21.25	MK 2	248	150	90,30
12.440.2150	21.5	MK 2	248	150	86,60
12.440.2175	21.75	MK 2	248	150	92,35
12.440.2200	22	MK 2	248	150	89,10
12.440.2225	22.25	MK 2	248	150	105,90
12.440.2250	22.5	MK 2	253	155	93,90
12.440.2275	22.75	MK 2	253	155	103,20
12.440.2300	23	MK 2	253	155	98,90
12.440.2325	23.25	MK 3	276	155	131,75
12.440.2350	23.5	MK 3	276	155	104,50
12.440.2375	23.75	MK 3	281	160	123,75
12.440.2400	24	MK 3	281	160	106,50
12.440.2425	24.25	MK 3	281	160	126,25
12.440.2450	24.5	MK 3	281	160	111,30
12.440.2475	24.75	MK 3	281	160	131,70
12.440.2500	25	MK 3	281	160	116,05
12.440.2525	25.25	MK 3	286	165	138,05
12.440.2550	25.5	MK 3	286	165	118,95
12.440.2575	25.75	MK 3	286	165	147,80
12.440.2600	26	MK 3	286	165	128,15
12.440.2625	26.25	MK 3	286	165	152,80
12.440.2650	26.5	MK 3	286	165	133,20
12.440.2675	26.75	MK 3	291	170	171,60
12.440.2700	27	MK 3	291	170	137,10
12.440.2725	27.25	MK 3	291	170	203,55
12.440.2750	27.5	MK 3	291	170	147,80
12.440.2775	27.75	MK 3	291	170	169,10
12.440.2800	28	MK 3	291	170	146,35
12.440.2825	28.25	MK 3	296	175	174,90
12.440.2850	28.5	MK 3	296	175	161,45
12.440.2875	28.75	MK 3	296	175	220,95
12.440.2900	29	MK 3	296	175	153,30
12.440.2925	29.25	MK 3	296	175	224,00
12.440.2950	29.5	MK 3	296	175	160,25
12.440.2975	29.75	MK 3	296	175	183,65
12.440.3000	30	MK 3	296	175	160,25
12.440.3025	30.25	MK 3	301	180	214,95
12.440.3050	30.5	MK 3	301	180	193,45

Ref.	d1	d2	l1	l2	€
12.440.3075	30.75	MK 3	301	180	214,00
12.440.3100	31	MK 3	301	180	192,25
12.440.3125	31.25	MK 3	301	180	280,00
12.440.3150	31.5	MK 3	301	180	211,80
12.440.3200	32	MK 4	334	185	210,70
12.440.3250	32.5	MK 4	334	185	233,40
12.440.3300	33	MK 4	334	185	233,40
12.440.3350	33.5	MK 4	334	185	247,15
12.440.3400	34	MK 4	339	190	254,00
12.440.3450	34.5	MK 4	339	190	268,00
12.440.3500	35	MK 4	339	190	257,00
12.440.3550	35.5	MK 4	339	190	285,00
12.440.3600	36	MK 4	344	195	271,00
12.440.3650	36.5	MK 4	344	195	294,00
12.440.3700	37	MK 4	344	195	285,00
12.440.3750	37.5	MK 4	344	195	321,00
12.440.3800	38	MK 4	349	200	306,00
12.440.3850	38.5	MK 4	349	200	368,00
12.440.3900	39	MK 4	349	200	331,00
12.440.3950	39.5	MK 4	349	200	405,00
12.440.4000	40	MK 4	349	200	349,00
12.440.4050	40.5	MK 4	354	205	528,00
12.440.4100	41	MK 4	354	205	404,00
12.440.4150	41.5	MK 4	354	205	561,00
12.440.4200	42	MK 4	354	205	401,00
12.440.4250	42.5	MK 4	354	205	584,00
12.440.4300	43	MK 4	359	210	482,00
12.440.4350	43.5	MK 4	359	210	606,00
12.440.4400	44	MK 4	359	210	493,00
12.440.4450	44.5	MK 4	359	210	637,00
12.440.4500	45	MK 4	359	210	497,00
12.440.4550	45.5	MK 4	364	215	688,00
12.440.4600	46	MK 4	364	215	537,00
12.440.4650	46.5	MK 4	364	215	682,00
12.440.4700	47	MK 4	364	215	564,00
12.440.4750	47.5	MK 4	364	215	705,00
12.440.4800	48	MK 4	369	220	575,00
12.440.4850	48.5	MK 4	369	220	732,00
12.440.4900	49	MK 4	369	220	612,00
12.440.4950	49.5	MK 4	369	220	772,00
12.440.5000	50	MK 4	369	220	607,00
12.440.5100	51	MK 5	412	225	1.183,00
12.440.5200	52	MK 5	412	225	1.162,00
12.440.5300	53	MK 5	412	225	1.443,00
12.440.5400	54	MK 5	417	230	1.333,00
12.440.5500	55	MK 5	417	230	1.271,00
12.440.5600	56	MK 5	417	230	1.523,00
12.440.5700	57	MK 5	422	235	1.582,00
12.440.5800	58	MK 5	422	235	1.387,00
12.440.5900	59	MK 5	422	235	1.527,00
12.440.6000	60	MK 5	422	235	1.399,00

> 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



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤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	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	€
12.500.0700	7	MK 1	150	69	60,95
12.500.0800	8	MK 1	156	75	56,25
12.500.0900	9	MK 1	162	81	57,40
12.500.1000	10	MK 1	168	87	56,10
12.500.1100	11	MK 1	175	94	59,85
12.500.1200	12	MK 1	182	101	59,35
12.500.1250	12.5	MK 1	182	101	62,60
12.500.1300	13	MK 1	182	101	62,90
12.500.1350	13.5	MK 1	189	108	73,60
12.500.1400	14	MK 1	189	108	69,60
12.500.1450	14.5	MK 2	212	114	82,85
12.500.1500	15	MK 2	212	114	83,45
12.500.1550	15.5	MK 2	218	120	91,00
12.500.1600	16	MK 2	218	120	84,00
12.500.1650	16.5	MK 2	223	125	90,80
12.500.1700	17	MK 2	223	125	86,60
12.500.1750	17.5	MK 2	228	130	93,20
12.500.1800	18	MK 2	228	130	90,30

Ref.	d1	d2	l1	l2	€
12.500.1850	18.5	MK 2	233	135	102,45
12.500.1900	19	MK 2	233	135	101,40
12.500.1950	19.5	MK 2	238	140	122,40
12.500.2000	20	MK 2	238	140	106,30
12.500.2050	20.5	MK 2	243	145	117,75
12.500.2100	21	MK 2	243	145	109,40
12.500.2150	21.5	MK 2	248	150	125,45
12.500.2200	22	MK 2	248	150	125,35
12.500.2250	22.5	MK 2	253	155	149,60
12.500.2300	23	MK 2	253	155	138,85
12.500.2350	23.5	MK 3	276	155	173,60
12.500.2400	24	MK 3	281	160	152,60
12.500.2450	24.5	MK 3	281	160	167,75
12.500.2500	25	MK 3	281	160	158,55
12.500.2550	25.5	MK 3	286	165	191,80
12.500.2600	26	MK 3	286	165	174,20
12.500.2650	26.5	MK 3	286	165	178,60
12.500.2700	27	MK 3	291	170	182,60

Ref.	d1	d2	l1	l2	€
12.500.2750	27.5	MK 3	291	170	213,10
12.500.2800	28	MK 3	291	170	212,65
12.500.2850	28.5	MK 3	296	175	205,75
12.500.2900	29	MK 3	296	175	196,05
12.500.2950	29.5	MK 3	296	175	211,70
12.500.3000	30	MK 3	296	175	185,35
12.500.3100	31	MK 3	301	180	257,00
12.500.3200	32	MK 4	334	185	249,90
12.500.3300	33	MK 4	334	185	261,00
12.500.3400	34	MK 4	339	190	299,00
12.500.3500	35	MK 4	339	190	316,00
12.500.3600	36	MK 4	344	195	344,00
12.500.3700	37	MK 4	344	195	347,00
12.500.3800	38	MK 4	349	200	375,00
12.500.3900	39	MK 4	349	200	421,00
12.500.4000	40	MK 4	349	200	408,00

> 12.900 Phantom

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



P 11	P 12	P 13	M 21	K 31	K 32	N 42	N 51	N 61
≤500 N/mm²	≤850 N/mm²	<1000 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Cu	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
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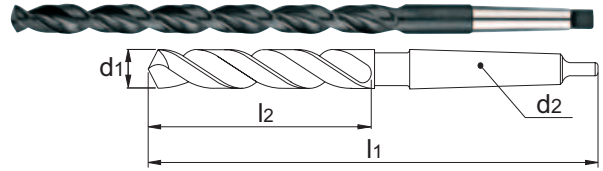
Ref.	d1	d2	l1	l2	€
12.900.1001	10	MK 1	285	185	99,70
12.900.1003	10	MK 1	360	235	139,40
12.900.1051	10.5	MK 1	285	185	104,20
12.900.1053	10.5	MK 1	360	235	175,05
12.900.1101	11	MK 1	300	195	111,05
12.900.1103	11	MK 1	375	250	228,70
12.900.1151	11.5	MK 1	300	195	119,85
12.900.1201	12	MK 1	310	205	112,30
12.900.1203	12	MK 1	395	260	211,85
12.900.1251	12.5	MK 1	310	205	120,25
12.900.1253	12.5	MK 1	395	260	212,35
12.900.1301	13	MK 1	310	205	116,20
12.900.1303	13	MK 1	395	260	197,20
12.900.1351	13.5	MK 1	325	220	136,55
12.900.1353	13.5	MK 1	410	275	245,35
12.900.1401	14	MK 1	325	220	125,50
12.900.1403	14	MK 1	410	275	201,20
12.900.1451	14.5	MK 2	340	220	135,25
12.900.1453	14.5	MK 2	425	275	267,00
12.900.1501	15	MK 2	340	220	140,30
12.900.1503	15	MK 2	425	275	220,75
12.900.1551	15.5	MK 2	355	230	148,20
12.900.1553	15.5	MK 2	445	295	280,00
12.900.1601	16	MK 2	355	230	146,25

Ref.	d1	d2	l1	l2	€
12.900.1603	16	MK 2	445	295	237,95
12.900.1651	16.5	MK 2	355	230	146,25
12.900.1653	16.5	MK 2	445	295	336,00
12.900.1701	17	MK 2	355	230	164,25
12.900.1703	17	MK 2	445	295	282,00
12.900.1751	17.5	MK 2	370	245	177,10
12.900.1753	17.5	MK 2	465	310	335,00
12.900.1801	18	MK 2	370	245	172,40
12.900.1803	18	MK 2	465	310	284,00
12.900.1851	18.5	MK 2	370	245	177,20
12.900.1853	18.5	MK 2	465	310	373,00
12.900.1901	19	MK 2	370	245	183,30
12.900.1903	19	MK 2	465	310	287,00
12.900.1951	19.5	MK 2	385	260	204,15
12.900.1953	19.5	MK 2	490	325	380,00
12.900.2001	20	MK 2	385	260	205,25
12.900.2003	20	MK 2	490	325	299,00
12.900.2051	20.5	MK 2	385	260	260,00
12.900.2053	20.5	MK 2	490	325	452,00
12.900.2101	21	MK 2	385	260	241,15
12.900.2103	21	MK 2	490	325	366,00
12.900.2201	22	MK 2	405	270	261,00
12.900.2203	22	MK 2	515	345	465,00
12.900.2301	23	MK 2	405	270	293,00

Ref.	d1	d2	l1	l2	€
12.900.2303	23	MK 2	515	345	466,00
12.900.2401	24	MK 3	440	290	322,00
12.900.2403	24	MK 3	555	365	661,00
12.900.2501	25	MK 3	440	290	330,00
12.900.2503	25	MK 3	555	365	687,00
12.900.2601	26	MK 3	440	290	355,00
12.900.2603	26	MK 3	555	365	685,00
12.900.2701	27	MK 3	460	305	421,00
12.900.2801	28	MK 3	460	305	421,00
12.900.2803	28	MK 3	580	385	813,00
12.900.2901	29	MK 3	460	305	481,00
12.900.3001	30	MK 3	460	305	449,00
12.900.3003	30	MK 3	580	385	678,00
12.900.3201	32	MK 4	505	320	590,00
12.900.3203	32	MK 4	635	410	1.012,00
12.900.3501	35	MK 4	530	340	651,00
12.900.3801	38	MK 4	555	360	772,00
12.900.4001	40	MK 4	555	360	834,00
12.900.4003	40	MK 4	695	460	1.228,00
12.900.4201	42	MK 4	555	360	1.100,00
12.900.4501	45	MK 4	585	385	1.363,00
12.900.4503	45	MK 4	735	490	1.607,00
12.900.5001	50	MK 4	605	405	1.586,00

**> 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



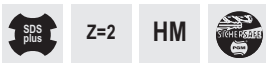
HSS	OX.	NIT. ≥ 16,0	NORM	TS	DIN 228-B			
P 11 5600 N/mm²	P 12 5850 N/mm²	P 13 <1000 N/mm²	M 21 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 E	22-30 E	15-20 D	8-12 C	15-20 D	25-30 D	45-50 F	25-40 D	22-28 C

Ref.	d1	d2	l1	l2	€
12.910.1005	10	MK 1	500	420	214,75
12.910.1205	12	MK 1	500	420	209,65
12.910.1405	14	MK 1	500	420	305,00
12.910.1407	14	MK 1	650	500	429,00
12.910.1505	15	MK 2	600	475	464,00
12.910.1507	15	MK 2	750	650	580,00
12.910.1605	16	MK 2	600	500	484,00
12.910.1705	17	MK 2	600	500	559,00
12.910.1805	18	MK 2	600	500	551,00
12.910.1905	19	MK 2	600	500	543,00
12.910.2005	20	MK 2	600	500	559,00

Ref.	d1	d2	l1	l2	€
12.910.2105	21	MK 2	600	500	627,00
12.910.2205	22	MK 2	600	500	662,00
12.910.2305	23	MK 2	600	500	685,00
12.910.2405	24	MK 3	600	475	703,00
12.910.2505	25	MK 3	600	475	759,00
12.910.2605	26	MK 3	600	475	866,00
12.910.2805	28	MK 3	600	475	894,00
12.910.3005	30	MK 3	600	475	812,00
12.910.3503	35	MK 4	600	450	888,00
12.910.3803	38	MK 4	600	450	1.048,00

> 13.740 Phantom

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



Z=2

HM



Ref.	d1	l1	l2	€
13.740.0411	4	110	50	5,82
13.740.0511	5	110	50	4,42
13.740.0516	5	160	100	5,11
13.740.0551	5.5	110	50	4,81
13.740.0552	5.5	160	100	5,61
13.740.0611	6	110	50	4,51
13.740.0616	6	160	100	5,02
13.740.0621	6	210	150	6,78
13.740.0626	6	260	200	10,33
13.740.0631	6	310	250	14,12
13.740.0651	6.5	110	50	5,10
13.740.0652	6.5	160	100	5,92
13.740.0711	7	110	50	6,14
13.740.0716	7	160	100	6,76
13.740.0721	7	210	150	8,34
13.740.0811	8	110	50	5,06
13.740.0816	8	160	100	5,50
13.740.0821	8	210	150	7,04
13.740.0826	8	260	200	9,08
13.740.0831	8	310	250	13,38
13.740.0846	8	450	400	16,58
13.740.0916	9	160	100	8,15
13.740.0921	9	210	150	8,57
13.740.1011	10	110	50	6,09
13.740.1016	10	160	100	6,34

Ref.	d1	l1	l2	€
13.740.1021	10	210	150	7,56
13.740.1026	10	260	200	10,13
13.740.1031	10	310	250	13,59
13.740.1046	10	450	400	18,97
13.740.1116	11	160	100	9,03
13.740.1216	12	160	100	7,91
13.740.1221	12	210	150	10,17
13.740.1226	12	260	200	12,03
13.740.1231	12	310	250	16,46
13.740.1246	12	450	400	19,77
13.740.1316	13	160	100	10,79
13.740.1326	13	260	200	15,41
13.740.1346	13	450	400	23,69
13.740.1416	14	160	100	10,62
13.740.1421	14	210	150	11,84
13.740.1426	14	260	200	14,06
13.740.1431	14	310	250	17,59
13.740.1446	14	450	400	21,74
13.740.1516	15	160	100	14,61
13.740.1521	15	210	150	17,44
13.740.1526	15	260	200	18,02
13.740.1546	15	450	400	29,00
13.740.1616	16	160	100	13,96
13.740.1621	16	210	150	15,05
13.740.1626	16	260	200	21,04

Ref.	d1	l1	l2	€
13.740.1631	16	310	250	23,39
13.740.1646	16	450	400	30,55
13.740.1660	16	600	550	34,90
13.740.1690	16	1000	950	96,85
13.740.1821	18	210	150	21,09
13.740.1826	18	260	200	25,10
13.740.1831	18	310	250	32,90
13.740.1846	18	450	400	33,15
13.740.1860	18	600	550	40,15
13.740.1890	18	1000	950	104,00
13.740.2021	20	210	150	27,25
13.740.2026	20	260	200	27,95
13.740.2031	20	310	250	35,60
13.740.2046	20	450	400	39,25
13.740.2090	20	1000	950	128,40
13.740.2226	22	260	200	41,90
13.740.2231	22	310	250	39,85
13.740.2246	22	450	400	45,90
13.740.2426	24	260	200	49,65
13.740.2446	24	450	400	58,50
13.740.2526	25	260	200	52,15
13.740.2531	25	310	250	57,30
13.740.2546	25	450	400	61,90
13.740.2590	25	1000	950	159,85

> 13.744 Phantom

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



Z=4

HM



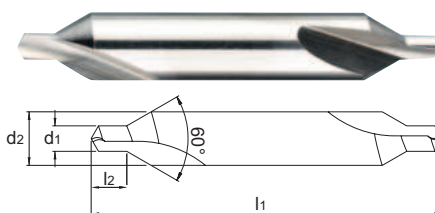
Ref.	d1	I1	I2	€
13.744.0511	5	110	50	10,24
13.744.0516	5	160	100	10,97
13.744.0552	5.5	160	100	10,64
13.744.0611	6	110	50	10,05
13.744.0616	6	160	100	10,67
13.744.0621	6	210	150	13,80
13.744.0626	6	260	200	18,27
13.744.0631	6	310	250	26,10
13.744.0652	6.5	160	100	13,02
13.744.0716	7	160	100	13,42
13.744.0811	8	110	50	11,24
13.744.0816	8	160	100	12,03
13.744.0821	8	210	150	13,80
13.744.0826	8	260	200	16,20
13.744.0831	8	310	250	27,35
13.744.0846	8	450	400	39,25
13.744.0916	9	160	100	14,71

Ref.	d1	I1	I2	€
13.744.1011	10	110	50	12,33
13.744.1016	10	160	100	13,34
13.744.1021	10	210	150	15,37
13.744.1026	10	260	200	17,87
13.744.1031	10	310	250	28,10
13.744.1046	10	450	400	43,55
13.744.1216	12	160	100	15,20
13.744.1221	12	210	150	18,23
13.744.1226	12	260	200	20,91
13.744.1231	12	310	250	32,45
13.744.1246	12	450	400	47,30
13.744.1416	14	160	100	22,04
13.744.1421	14	210	150	27,55
13.744.1426	14	260	200	33,15
13.744.1431	14	310	250	37,35
13.744.1446	14	450	400	49,60
13.744.1516	15	160	100	35,85

Ref.	d1	I1	I2	€
13.744.1526	15	260	200	44,00
13.744.1616	16	160	100	35,00
13.744.1621	16	210	150	39,15
13.744.1626	16	260	200	50,55
13.744.1631	16	310	250	52,15
13.744.1646	16	450	400	63,45
13.744.1660	16	600	550	99,75
13.744.1690	16	1000	950	185,45
13.744.1825	18	250	200	60,30
13.744.1846	18	450	400	70,25
13.744.2025	20	250	200	66,35
13.744.2046	20	450	400	79,70
13.744.2225	22	250	200	76,70
13.744.2246	22	450	400	94,50
13.744.2426	24	250	200	101,15
13.744.2525	25	250	200	89,10
13.744.2546	25	450	400	112,70

> 15.095 INTERNATIONAL TOOLS

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



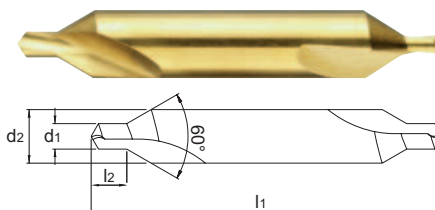
P 11	P 12	P 13	K 31	K 32	N 41	N 42	N 43	N 51	N 61
≤500 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Mg	Cu	PVC
20-25 E	15-25 E	16-22 F	25-30 E	20-25 D	50-60 E	60-70 E	45-50 E	25-40 E	18-28 E

Ref.	d1	d2	I1	I2	€
15.095.1031	1	3.15	31	1,3-1,7	3,70
15.095.1040	1	4	35	1,3-1,7	3,91
15.095.1231	1.25	3.15	31	1,6-2,0	3,70
15.095.1550	1.5	5	40	2,0-2,6	4,18
15.095.1640	1.6	4	35	2,0-2,6	3,91
15.095.2050	2	5	40	2,5-3,1	4,18
15.095.2060	2	6	45	2,5-3,1	4,57
15.095.2563	2.5	6.3	45	3,1-3,8	5,11
15.095.2580	2.5	8	50	3,1-3,8	6,52

Ref.	d1	d2	I1	I2	€
15.095.3090	3	10	55	3,9-4,6	10,50
15.095.3180	3.15	8	50	3,9-4,6	6,06
15.095.3190	3.15	10	55	3,9-4,6	10,50
15.095.4010	4	10	55	5,0-5,9	8,49
15.095.4012	4	12	63	5,0-5,9	13,33
15.095.5013	5	12.5	63	6,3-7,2	13,33
15.095.6316	6.3	16	71	8,0-8,9	23,04
15.095.8020	8	20	80	10,1-11,1	35,70
15.095.9025	10	25	100	12,8-13,8	72,10

> 15.096 INTERNATIONAL TOOLS

NL ECO PRO HSS Centerboor TiN, 60°
 FR Foret à centrer 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°



P 11	P 12	P 13	K 31	K 32	N 41	N 42	N 43	N 51	N 61
≤500 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Mg	Cu	PVC
20-25 E	15-25 E	16-22 F	25-30 E	20-25 D	50-60 E	60-70 E	45-50 E	25-40 E	18-28 E

Ref.	d1	d2	I1	I2	€
15.096.1040	1	4	35	1,3-1,7	6,36
15.096.1640	1.6	4	35	2,0-2,6	6,36
15.096.2050	2	5	40	2,5-3,1	6,99
15.096.2563	2.5	6.3	45	3,1-3,8	7,62

Ref.	d1	d2	I1	I2	€
15.096.3180	3.15	8	50	3,9-4,6	8,89
15.096.4010	4	10	55	5,0-5,9	14,13
15.096.5013	5	12.5	63	6,3-7,2	18,17

**> 15.100 Phantom**

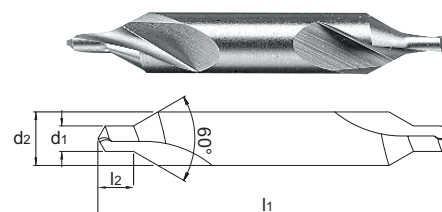
NL HSS Centerboor 60°
FR Foret à centrer HSS 60°
ES Broca escalonada HSS 60°
DE HSS Zentrierbohrer 60°
EN HSS Centre Drill 60°



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
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20-25 E	15-25 E	16-22 F	25-30 E	20-25 D	50-60 E	60-70 E	45-50 E	25-40 E	18-28 E
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Ref.	d1	d2	l1	l2	€
15.100.0531	0.5	3.15	25	0,6-0,9	8,13
15.100.0735	0.75	3.5	35	1,0-1,3	10,86
15.100.0831	0.8	3.15	25	1,0-1,3	8,13
15.100.1031	1	3.15	31	1,3-1,7	8,13
15.100.1040	1	4	35	1,3-1,7	9,63
15.100.1231	1.25	3.15	31	1,6-2,0	8,13
15.100.1240	1.25	4	35	1,6-2,0	9,84
15.100.1550	1.5	5	40	2,0-2,6	10,22
15.100.1640	1.6	4	35	2,0-2,6	8,13
15.100.1650	1.6	5	40	2,0-2,6	10,86
15.100.2050	2	5	40	2,5-3,1	9,52
15.100.2060	2	6	45	2,5-3,1	11,34
15.100.2063	2	6.3	45	2,5-3,1	11,87
15.100.2563	2.5	6.3	45	3,1-3,8	11,34
15.100.2580	2.5	8	50	3,1-3,8	12,78
15.100.3090	3	10	55	3,9-4,6	16,09

**> 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°

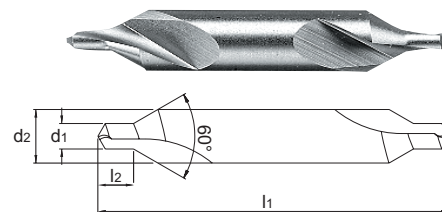


P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC
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25-30 E	20-40 E	16-22 F	8-10 D	6-8 C	25-30 E	20-25 D	60-70 E	50-80 E	30-40 E	10-15 D	18-21 E
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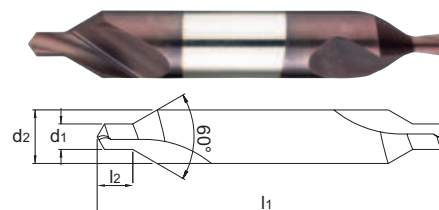
Ref.	d1	d2	l1	l2	€
15.120.0735	0.75	3.5	35	1,0-1,3	12,25
15.120.0831	0.8	3.15	25	1,0-1,3	12,25
15.120.1040	1	4	35	1,3-1,7	12,25
15.120.1231	1.25	3.15	31	1,6-2,0	13,26
15.120.1550	1.5	5	40	2,0-2,6	12,51
15.120.1640	1.6	4	35	2,0-2,6	13,26
15.120.2050	2	5	40	2,5-3,1	14,60
15.120.2060	2	6	45	2,5-3,1	14,33

Ref.	d1	d2	l1	l2	€
15.100.3180	3.15	8	50	3,9-4,6	12,78
15.100.3190	3.15	10	55	3,9-4,6	16,53
15.100.3590	3.5	10	55	4,0-4,5	33,45
15.100.4010	4	10	55	5,0-5,9	14,87
15.100.4012	4	12	63	5,0-5,9	27,35
15.100.4013	4	12.5	63	5,0-5,9	28,05
15.100.5013	5	12.5	63	6,3-7,2	23,69
15.100.5014	5	14	69	6,3-7,2	34,40
15.100.5016	5	16	71	6,3-7,2	40,05
15.100.6018	6	18	77	8,0-8,9	54,60
15.100.6316	6.3	16	71	8,0-8,9	38,60
15.100.6320	6.3	20	80	8,0-8,9	78,10
15.100.8020	8	20	80	10,1-11,1	69,05
15.100.9025	10	25	100	12,8-13,8	128,65
15.100.9531	12.5	31.5	125	16,5-17,5	298,00



> 15.124 Phantom

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



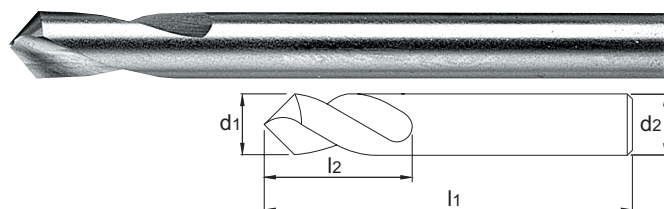
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 43 Mg	N 51 Cu	N 52 CuAlFe	N 61 PVC
35-45 E	25-45 E	20-25 F	10-20 D	10-15 C	40-45 E	30-40 D	75-100 E	60-80 E	40-45 D	20-25 D	18-21 E

Ref.	d1	d2	l1	l2	€
15.124.0531	0.5	3.15	25	0,6-0,9	18,19
15.124.0831	0.8	3.15	25	1,0-1,3	18,19
15.124.1031	1	3.15	31	1,3-1,7	21,04
15.124.1040	1	4	35	1,3-1,7	21,36
15.124.1231	1.25	3.15	31	1,6-2,0	21,04
15.124.1550	1.5	5	40	2,0-2,6	24,17
15.124.1640	1.6	4	35	2,0-2,6	21,36
15.124.2050	2	5	40	2,5-3,1	24,17
15.124.2060	2	6	45	2,5-3,1	27,25

Ref.	d1	d2	l1	l2	€
15.124.2563	2.5	6.3	45	3,1-3,8	27,25
15.124.2580	2.5	8	50	3,1-3,8	32,60
15.124.3090	3	10	55	3,9-4,6	39,85
15.124.3180	3.15	8	50	3,9-4,6	32,60
15.124.4010	4	10	55	5,0-5,9	39,85
15.124.4012	4	12	63	5,0-5,9	58,40
15.124.5013	5	12.5	63	6,3-7,2	58,40
15.124.6316	6.3	16	71	8,0-8,9	82,25
15.124.8020	8	20	80	10,1-11,1	149,15

> 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°



P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 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 43 Mg	N 51 Cu	N 52 CuAlFe	N 61 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

Ref.	d1	d2	l1	l2	€
15.600.0200	2	2	49	8	16,25
15.600.0300	3	3	50	10	13,20
15.600.0400	4	4	52	12	13,20
15.600.0500	5	5	60	15	14,33
15.600.0600	6	6	66	20	18,29

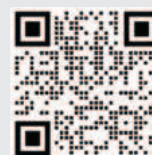
Ref.	d1	d2	l1	l2	€
15.600.0800	8	8	79	25	20,37
15.600.1000	10	10	89	25	27,05
15.600.1200	12	12	102	30	33,80
15.600.1400	14	14	115	35	48,75
15.600.1600	16	16	115	35	56,30

Ref.	d1	d2	l1	l2	€
15.600.1800	18	18	130	40	81,10
15.600.2000	20	20	131	40	85,40
15.600.2500	25	25	138	45	143,60



NL Verschil tussen centerboor en centreerboor
 FR La différence entre un foret à centrer 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

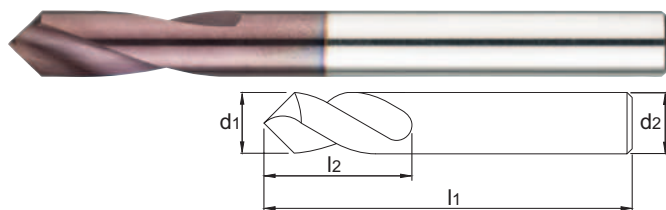
Read me



www.phantom.eu

**> 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
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 43 Mg	N 51 Cu	N 52 CuAlFe
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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	17,60
15.604.0400	4	4	52	12	19,10
15.604.0500	5	5	60	15	20,96
15.604.0600	6	6	66	20	27,00

Ref.	d1	d2	l1	l2	€
15.604.0800	8	8	79	25	30,95
15.604.1000	10	10	89	25	41,00
15.604.1200	12	12	102	30	52,20
15.604.1600	16	16	115	35	80,80

Ref.	d1	d2	l1	l2	€
15.604.1800	18	18	130	40	114,20
15.604.2000	20	20	131	40	129,95
15.604.2500	25	25	138	45	192,25

> 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
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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
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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
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Ref.	Type	Ø mm	€
19.120.1000	11.416	1-10 mm x 0,5 mm	38,35
19.120.1300	11.416	1-13 mm x 0,5 mm	70,40

Ref.	Type	Ø mm	€
19.120.6000	11.416	1-10 mm x 0,5 mm (170x)	209,80

> 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
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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
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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
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Ref.	Type	Ø mm	€
19.124.1000	11.420	1-10 mm x 0,5 mm	57,00
19.124.1010	11.420	1-10 mm x 0,1 mm (91x)	295,00
19.124.1300	11.420	1-13 mm x 0,5 mm	119,00

Ref.	Type	Ø mm	€
19.124.6000	11.420	1-10 mm x 0,5 mm (170x)	368,00
19.124.6100	11.420	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	675,00

> 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			ECO		
P 11	P 12	P 13	K 31	K 32	N 42	N 51	N 61
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu SiP10%	Cu	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	€
19.127.1000	11.423	1-10 mm x 0,5 mm	41,35

Ref.	Type	Ø mm	€
19.127.1300	11.423	1-13 mm x 0,5 mm	80,00

> 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



HSS	DIN 338	N			ECO		
P 11	P 12	P 13	K 31	K 32	N 42	N 51	N 61
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu SiP>10%	Cu	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	38,50
19.130.1300	11.426	1-13 mm x 0,5 mm	77,50

Ref.	Type	Ø mm	€
19.130.6000	11.426	1-10 mm x 0,5 mm (170x)	244,85

> 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



HSS	DIN 338	N			ECO PRO		
P 11	P 12	P 13	K 31	K 32	N 42	N 51	N 61
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Cu	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	65,00
19.134.1300	11.430	1-13 mm x 0,5 mm	129,00

Ref.	Type	Ø mm	€
19.134.6000	11.430	1-10 mm x 0,5 mm (170x)	432,00
19.134.6100	11.430	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	764,00

**> 19.135 INTERNATIONAL TOOLS**

- NL ECO PRO HSS Set Spiraalboren Step-point, TiN-tip, met drievlaks schacht
FR Coffret de Forets HSS ECO PRO Step-point, avec revêtement TiN sur la partie utile, queue à trois méplats
ES Estuche de brocas HSS ECO PRO Step-point, con punta TiN, con 3 chaflanes
DE ECO PRO HSS Satz Spiralbohrer Step-point, TiN-Tip, 3-Flächen-Schaft
EN ECO PRO HSS Drill set Step-point, TiN coated tip, with 3 flat surfaces

**NIEUW NOUVEAU NUEVO NEU**

P 11 s800 N/mm ²	P 12 s850 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.	Type	Ø mm	€
19.135.1000	11.434	1-10 mm x 0,5 mm	79,00

Ref.	Type	Ø mm	€
19.135.1300	11.434	1-13 mm x 0,5 mm	159,00

> 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 s800 N/mm ²	P 12 s850 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
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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
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Ref.	Type	Ø mm	€
19.136.1000	11.431	1-10 mm x 0,5 mm	76,10

Ref.	Type	Ø mm	€
19.136.1300	11.431	1-13 mm x 0,5 mm	147,90

> 19.137 Phantom

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



P 11 s800 N/mm ²	P 12 s850 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
------------	------------	------------	-----------	------------	------------	------------	------------	------------

Ref.	Type	Ø mm	€
19.137.1000	11.440	1-10 mm x 0,5 mm	99,70

Ref.	Type	Ø mm	€
19.137.1300	11.440	1-13 mm x 0,5 mm	189,55

> 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, queue à trois méplats, (usage à la main)
ES Estuche de brocas HSS con punta TiN, con 3 chaflanes, (uso manual)
DE HSS Satz Spiralbohrer TiN-Tip, 3-Flächen-Schaft, (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 ≤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 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.	Type	Ø mm	€
19.138.1000	11.441	1-10 mm x 0,5 mm	124,20

Ref.	Type	Ø mm	€
19.138.1300	11.441	1-13 mm x 0,5 mm	240,00

> 19.139 Phantom



NL HSS Set Spiraalboren Step-point, met drievlaks schacht
FR Coffret de Forets HSS Step-point, queue à trois méplats
ES Estuche de brocas HSS Step-point, con 3 chaflanes
DE HSS Satz Spiralbohrer Step-point, 3-Flächen-Schaft
EN HSS Drill set 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.	Type	Ø mm	€
19.139.0310	11.443	3-10 mm x 1 mm	86,00
19.139.1000	11.443	1-10 mm x 0,5 mm	171,00

Ref.	Type	Ø mm	€
19.139.1300	11.443	1-13 mm x 0,5 mm	329,00



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 queue à trois méplats
ES Estuche de brocas HSS-E con 3 chaflanes
DE HSS-E Satz Spiralbohrer 3-Flächen-Schaft
EN HSS-E Drill set with 3 flat surfaces



HSS-E	DIN 338	N							
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	139,60

Ref.	Type	Ø mm	€
19.140.1300	11.445	1-13 mm x 0,5 mm	274,00

> 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, queue à trois 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, 3-Flächen-Schaft, (handgebrauch)
EN HSS-E Drill set TiN coated tip, with 3 flat surfaces, (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
≤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	150,55

Ref.	Type	Ø mm	€
19.141.1300	11.446	1-13 mm x 0,5 mm	291,00

> 19.142 Phantom

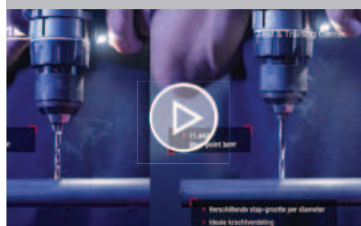
NL HSS-E Set Spiraalboren Step-point, met drievlaks schacht
FR Coffret de Forets HSS-E Step-point, queue à trois méplats
ES Estuche de brocas HSS-E Step-point, con 3 chaflanes
DE HSS-E Satz Spiralbohrer Step-point, 3-Flächen-Schaft
EN HSS-E Drill set Step-point, with 3 flat surfaces



HSS-E	OX.	DIN 338	N						
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	€
19.142.0310	11.447	3-10 mm x 1 mm	102,00
19.142.1000	11.447	1-10 mm x 0,5 mm	203,00

Ref.	Type	Ø mm	€
19.142.1300	11.447	1-13 mm x 0,5 mm	391,00



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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> 19.144 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			ECO
P 11	P 12	P 13	K 31	K 32	
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	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	22,00
19.144.1302	11.400	1-13 mm x 0,5 mm	42,00

Ref.	Type	Ø mm	€
19.144.6001	11.400	1-10 mm x 0,5 mm (170x)	178,00
19.144.6100	11.400	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	317,00

> 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						
P 11	P 12	P 13	M 21	K 31	K 32	N 42	N 51	N 61	
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Cu	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	€
19.145.1000	11.450	1-10 mm x 0,5 mm	89,00
19.145.1010	11.450	1-10 mm x 0,1 mm (91x)	474,00
19.145.1150	11.450	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	126,00
19.145.1300	11.450	1-13 mm x 0,5 mm	169,00

Ref.	Type	Ø mm	€
19.145.1590	11.450	1-5,9 mm x 0,1 mm	142,00
19.145.1600	11.450	6-10 mm x 0,1 mm	313,00
19.145.6000	11.450	1-10 mm x 0,5 mm (170x)	626,00
19.145.6100	11.450	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	1055,00

> 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						
P 11	P 12	P 13	M 21	K 31	K 32	N 41	N 42	N 51	N 61
≤600 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	€
19.146.1000	11.451	1-10 mm x 0,5 mm	113,00
19.146.1010	11.451	1-10 mm x 0,1 mm (91x)	554,00

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	156,00
19.146.1300	11.451	1-13 mm x 0,5 mm	219,00

**> 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	 ≥1,6	118° 				
P 11 ≤800 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	€
19.147.0310	11.461	3-10 mm x 1 mm	57,00
19.147.1000	11.461	1-10 mm x 0,5 mm	113,00
19.147.1010	11.461	1-10 mm x 0,1 mm (91x)	554,00

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	156,00
19.147.1300	11.461	1-13 mm x 0,5 mm	219,00

> 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			135°	ECO PRO	
P 11 ≤800 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 51 Cu	N 52 CuAlFe
28-35	30-36	20-27	14-18	30-35	24-30	30-40	8-15

Ref.	Type	Ø mm	€
19.149.1000	11.490	1-10 mm x 0,5 mm	82,00
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)	556,00
19.149.6100	11.490	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	1034,00

> 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 ≤800 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 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	€
19.150.0310	11.500	3-10 mm x 1 mm	63,00
19.150.1000	11.500	1-10 mm x 0,5 mm	128,00
19.150.1010	11.500	1-10 mm x 0,1 mm (91x)	848,00
19.150.1150	11.500	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	185,00
19.150.1300	11.500	1-13 mm x 0,5 mm	255,00

Ref.	Type	Ø mm	€
19.150.1590	11.500	1-5,9 mm x 0,1 mm	223,00
19.150.1600	11.500	6-10 mm x 0,1 mm	606,00
19.150.6000	11.500	1-10 mm x 0,5 mm (170x)	928,00
19.150.6100	11.500	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	1616,00

> 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		 ≥1,6	 118°			
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 51 Cu	N 52 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	145,40

Ref.	Type	Ø mm	€
19.152.1300	11.506	1-13 mm x 0,5 mm	283,00

> 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			130°	INOX
P 14 ≤1400 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	S 71 Ni/Co	S 72 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	157,00
19.176.1150	11.760	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	219,00

Ref.	Type	Ø mm	€
19.176.1300	11.760	1-13 mm x 0,5 mm	331,00

> 19.374 Phantom

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



SDS plus	Z=2	HM	
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Ref.	Type	Ø mm	€
19.374.0100	13.740	5x160, 6x160, 8x160, 10x160 mm	25,00
19.374.0512	13.740	5x110, 6x110, 8x110, 6x160, 8x160, 10x160, 12x160 mm	57,00
19.374.1000	13.740	5x110, 6x160, 8x160, 10x160, 12x160, 8x210, 10x210, 12x210 mm (5x)	305,00



> 19.376

Phantom

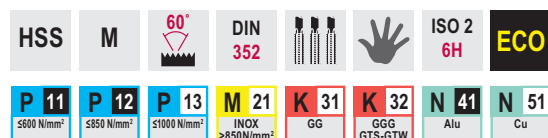
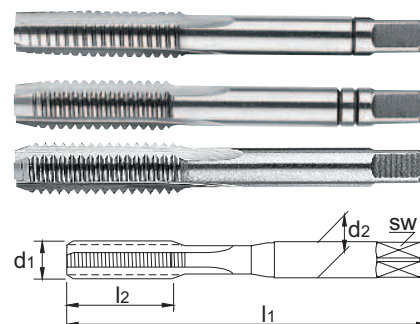
- NL HM-tip Set Hamerboren, SDS-PLUS met 4 snijkanten
- FR Jeu Forets à béton, SDS-PLUS à plaquette carbure à 4 taillants
- ES Juego de brocas martillo, SDS-PLUS con punta de carburo con 4 labios
- DE Hartmetallbestückt Satz Hammerbohrer, SDS-PLUS mit 4 Schneiden
- EN Carbide Tipped Hammer Drill set,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



Ref.	Type	Ø mm	€
19.376.0512	13.744	5x110, 6x110, 8x110, 6x160, 8x160, 10x160, 12x160 mm	101,00

21.140 INTERNATIONAL TOOLS

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

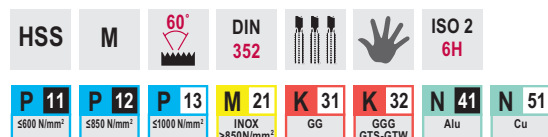
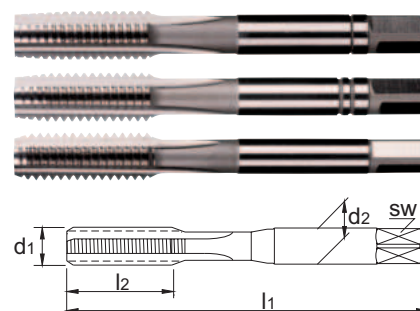


Ref.	d1	P	l1	l2	d2	sw	€
21.140.0300	M3	0.5	40	11	3.5	2.7	15,00
21.140.0400	M4	0.7	45	13	4.5	3.4	15,00
21.140.0500	M5	0.8	50	16	6	4.9	16,84
21.140.0600	M6	1	56	19	6	4.9	18,66
21.140.0800	M8	1.25	63	22	6	4.9	23,10
21.140.1000	M10	1.5	70	24	7	5.5	28,95
21.140.1200	M12	1.75	75	28	9	7	33,40
21.140.1400	M14	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 set à 3 stuks Metrisch
FR Tarauds à main HSS Jeu de 3 pièces Métrique
ES Machos mano HSS juego de 3 piezas Métrica
DE HSS Handgewindebohrer Satz von 3 Stück Metrisch
EN HSS Hand Taps set of 3 pieces Metric Coarse



Ref.	d1	P	l1	l2	d2	sw	€
21.145.0160	M1,6	0.35	32	8	2.5	2.1	90,45
21.145.0200	M2	0.4	36	8	2.8	2.1	28,95
21.145.0220	M2,2	0.45	36	9	2.8	2.1	65,95
21.145.0250	M2,5	0.45	40	9	2.8	2.1	33,15
21.145.0260	M2,6	0.45	40	9	2.8	2.1	33,15
21.145.0300	M3	0.5	40	11	3.5	2.7	22,03
21.145.0350	M3,5	0.6	45	12	4	3	28,65
21.145.0400	M4	0.7	45	13	4.5	3.4	22,03
21.145.0450	M4,5	0.75	50	16	6	4.9	29,35
21.145.0500	M5	0.8	50	16	6	4.9	24,72
21.145.0550	M5,5	0.9	56	18	6	4.9	32,15
21.145.0600	M6	1	56	19	6	4.9	27,40
21.145.0700	M7	1	56	19	6	4.9	41,20
21.145.0800	M8	1.25	63	22	6	4.9	33,90
21.145.0900	M9	1.25	63	22	7	5.5	51,00
21.145.1000	M10	1.5	70	24	7	5.5	42,55
21.145.1100	M11	1.5	70	24	8	6.2	60,95

Ref.	d1	P	l1	l2	d2	sw	€
21.145.1200	M12	1.75	75	28	9	7	49,05
21.145.1400	M14	2	80	30	11	9	65,65
21.145.1600	M16	2	80	32	12	9	61,45
21.145.1800	M18	2.5	95	34	14	11	123,60
21.145.2000	M20	2.5	95	34	16	12	141,25
21.145.2200	M22	2.5	100	34	18	14.5	155,20
21.145.2400	M24	3	110	38	18	14.5	165,25
21.145.2700	M27	3	110	38	20	16	287,00
21.145.3000	M30	3.5	125	45	22	18	389,00
21.145.3300	M33	3.5	125	50	25	20	384,00
21.145.3600	M36	4	150	56	28	22	409,00
21.145.3900	M39	4	150	60	32	24	511,00
21.145.4200	M42	4.5	150	60	32	24	746,00
21.145.4500	M45	4.5	160	65	36	29	859,00
21.145.4800	M48	5	180	70	36	29	987,00
21.145.5200	M52	5	180	70	40	32	1.204,00



> 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

HSS

MF

60°

DIN 2181

ISO 2 6H

P 11
≤600 N/mm²

P 12
≤850 N/mm²

P 13
≤1000 N/mm²

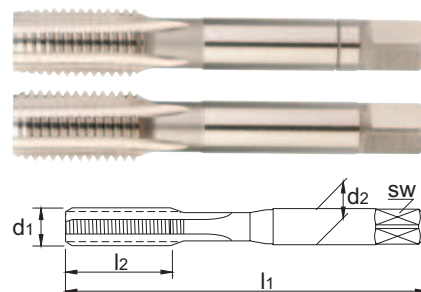
M 21
INOX
>850N/mm²

K 31
GG

K 32
GGG
GTS-GTW

N 41
Alu

N 51
Cu



Ref.	d1	P	l1	l2	d2	sw	€
21.250.0303	MF3	0.35	40	8	3.5	2.7	16,32
21.250.0405	MF4	0.5	45	10	4.5	3.4	21,39
21.250.0505	MF5	0.5	52	12	6	4.9	23,22
21.250.0605	MF6	0.5	56	14	6	4.9	20,77
21.250.0607	MF6	0.75	56	14	6	4.9	17,73
21.250.0707	MF7	0.75	56	14	6	4.9	33,35
21.250.0807	MF8	0.75	63	18	6	4.9	35,65
21.250.0810	MF8	1	63	22	6	4.9	30,75
21.250.0910	MF9	1	63	22	7	5.5	35,25
21.250.1007	MF10	0.75	63	20	7	5.5	32,20
21.250.1010	MF10	1	63	20	7	5.5	24,82
21.250.1012	MF10	1.25	70	24	7	5.5	24,82
21.250.1110	MF11	1	63	20	8	6.2	36,45
21.250.1210	MF12	1	70	22	9	7	35,65
21.250.1212	MF12	1.25	70	22	9	7	35,25
21.250.1215	MF12	1.5	70	22	9	7	34,95
21.250.1410	MF14	1	70	22	11	9	48,15
21.250.1412	MF14	1.25	70	22	11	9	43,30
21.250.1415	MF14	1.5	70	22	11	9	38,90

Ref.	d1	P	l1	l2	d2	sw	€
21.250.1610	MF16	1	70	22	12	9	54,45
21.250.1612	MF16	1.25	70	22	12	9	49,20
21.250.1615	MF16	1.5	70	22	12	9	44,15
21.250.1810	MF18	1	80	22	14	11	98,70
21.250.1815	MF18	1.5	80	22	14	11	88,60
21.250.1820	MF18	2	80	22	14	11	79,40
21.250.2010	MF20	1	80	22	16	12	144,20
21.250.2015	MF20	1.5	80	22	16	12	122,90
21.250.2020	MF20	2	80	22	16	12	116,15
21.250.2210	MF22	1	80	22	18	14.5	171,90
21.250.2215	MF22	1.5	80	22	18	14.5	154,45
21.250.2220	MF22	2	80	22	18	14.5	138,80
21.250.2415	MF24	1.5	90	22	18	14.5	163,90
21.250.2420	MF24	2	90	22	18	14.5	147,25
21.250.2715	MF27	1.5	90	22	20	16	276,00
21.250.2720	MF27	2	90	22	20	16	246,95
21.250.3015	MF30	1.5	90	22	22	18	333,00
21.250.3020	MF30	2	90	22	22	18	299,00
21.250.3320	MF33	2	100	25	25	20	398,00

> 21.405 Phantom

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

HSS

BSP G

55°

DIN 5157

P 11
≤600 N/mm²

P 12
≤850 N/mm²

P 13
≤1000 N/mm²

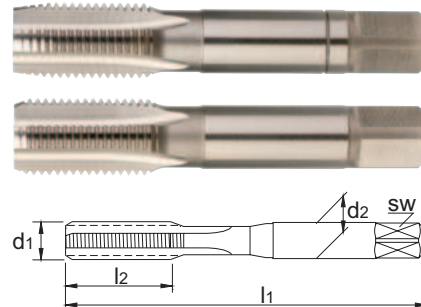
M 21
INOX
>850N/mm²

K 31
GG

K 32
GGG
GTS-GTW

N 41
Alu

N 51
Cu

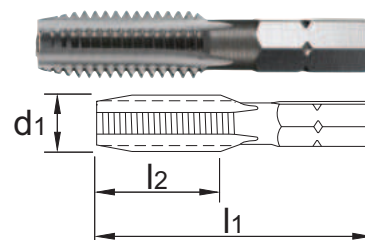


Ref.	d1	TPI	l1	l2	d2	sw	€
21.405.0973	G 1/8	28	63	20	7	5.5	31,55
21.405.1316	G 1/4	19	70	22	11	9	39,30
21.405.1666	G 3/8	19	70	22	12	9	40,00
21.405.2096	G 1/2	14	80	22	16	12	49,95
21.405.2291	G 5/8	14	80	22	18	14.5	43,60
21.405.2644	G 3/4	14	90	22	20	16	91,40

Ref.	d1	TPI	l1	l2	d2	sw	€
21.405.3020	G 7/8	14	90	22	22	18	110,95
21.405.3325	G 1	11	100	25	25	20	145,25
21.405.4191	G 1.1/4	11	125	40	32	24	460,00
21.405.4780	G 1.1/2	11	140	40	36	29	745,00
21.405.5375	G 1.3/4	11	140	40	40	32	1.451,00
21.405.5961	G 2	11	160	40	45	35	1.936,00

> 22.100 INTERNATIONAL TOOLS

- NL ECO HSS Machinetap Metrisch, 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, 1/4" (6,35 mm) Hexa-Bitaufnahme
 EN ECO HSS Machine Tap Metric Coarse, 1/4" (6,35 mm) hexagonal shank



P 11	P 12	K 31	N 41
≤600 N/mm²	≤850 N/mm²	GG	Alu
12-17	9-15	7-12	20-30

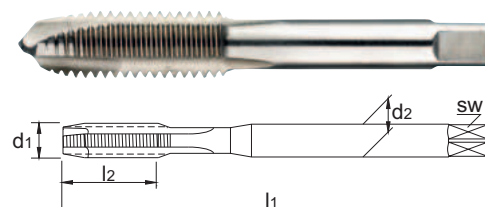
Ref.	d1	P	I1	I2	€
22.100.0300	M3	0.5	33	11	5,50
22.100.0400	M4	0.7	35	12	5,50

Ref.	d1	P	I1	I2	€
22.100.0500	M5	0.8	36	15	5,50
22.100.0600	M6	1	39	18	5,50

Ref.	d1	P	I1	I2	€
22.100.0800	M8	1.25	40	19	6,80
22.100.1000	M10	1.5	41	21	8,00

> 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



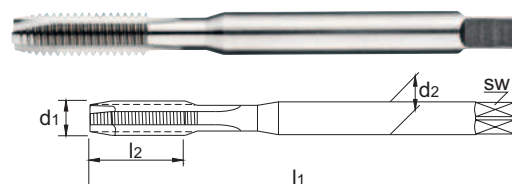
P 11	P 12	K 31	N 41
≤600 N/mm²	≤850 N/mm²	GG	Alu
12-17	9-15	7-12	20-30

Ref.	d1	P	I1	I2	d2	sw	€
22.190.0300	M3	0.5	40	11	3.5	2.7	4,05
22.190.0400	M4	0.7	45	13	4.5	3.4	4,58
22.190.0500	M5	0.8	50	16	6	4.9	4,84
22.190.0600	M6	1	56	19	6	4.9	5,81

Ref.	d1	P	I1	I2	d2	sw	€
22.190.0800	M8	1.25	63	22	6	4.9	7,71
22.190.1000	M10	1.5	70	24	7	5.5	9,29
22.190.1200	M12	1.75	75	28	9	7	11,87

> 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



P 11	P 12	K 31	N 41
≤600 N/mm²	≤850 N/mm²	GG	Alu
12-17	9-15	7-12	20-30

Ref.	d1	P	I1	I2	d2	sw	€
22.191.0300	M3	0.5	56	11	3.5	2.7	6,63
22.191.0400	M4	0.7	63	13	4.5	3.4	6,63
22.191.0500	M5	0.8	70	16	6	4.9	6,78

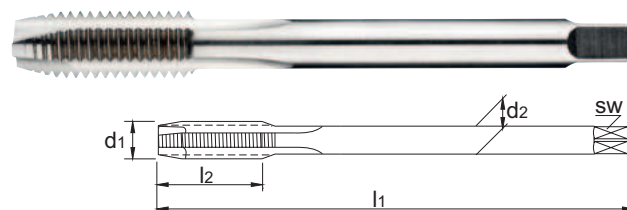
Ref.	d1	P	I1	I2	d2	sw	€
22.191.0600	M6	1	80	19	6	4.9	8,58
22.191.0800	M8	1.25	90	22	8	6.2	10,32
22.191.1000	M10	1.5	100	24	10	8	12,33

**> 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



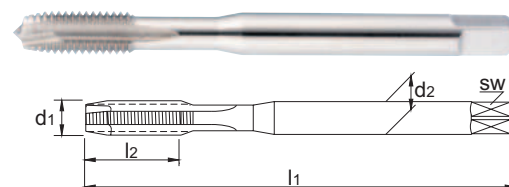
Ref.	d1	P	l1	l2	d2	sw	€
22.192.1200	M12	1.75	110	28	9	7	15,46

**> 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



Ref.	d1	P	l1	l2	d2	sw	€
22.195.0200	M2	0.4	45	8	2.8	2.1	19,47
22.195.0300	M3	0.5	56	11	3.5	2.7	12,19
22.195.0400	M4	0.7	63	13	4.5	3.4	12,47
22.195.0500	M5	0.8	70	16	6	4.9	13,16



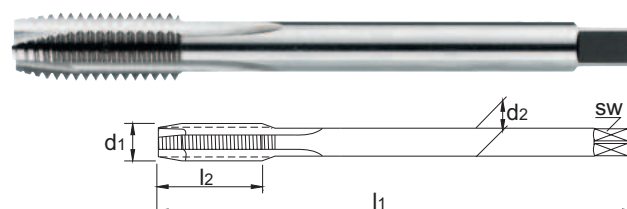
Ref.	d1	P	l1	l2	d2	sw	€
22.195.0600	M6	1	80	19	6	4.9	13,16
22.195.0800	M8	1.25	90	22	8	6.2	14,94
22.195.1000	M10	1.5	100	24	10	8	17,96

> 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



Ref.	d1	P	l1	l2	d2	sw	€
22.196.1000	M10	1.5	100	24	7	5.5	18,48
22.196.1200	M12	1.75	110	28	9	7	22,57
22.196.1400	M14	2	110	30	11	9	28,00
22.196.1600	M16	2	110	32	12	9	31,45
22.196.2000	M20	2.5	140	34	16	12	46,85
22.196.2200	M22	2.5	140	34	18	14.5	65,30



Ref.	d1	P	l1	l2	d2	sw	€
22.196.2400	M24	3	160	38	18	14.5	62,00
22.196.2700	M27	3	160	38	20	16	93,10
22.196.3000	M30	3.5	180	45	22	18	112,55
22.196.3300	M33	3.5	180	50	25	20	133,45
22.196.3600	M36	4	200	56	28	22	165,35

> 22.197 INTERNATIONAL TOOLS

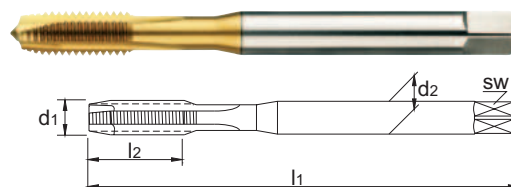
NL ECO PRO HSS-E Machinetap Metrisch, TiN
 FR Taraud machine HSS-E ECO PRO Métrique, TiN
 ES Macho máquina HSS-E ECO PRO Métrica, TiN
 DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, TiN
 EN ECO PRO HSS-E Machine Tap Metric Coarse, TiN



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	17,67
22.197.0400	M4	0.7	63	13	4.5	3.4	17,15
22.197.0500	M5	0.8	70	16	6	4.9	19,00

Ref.	d1	P	l1	l2	d2	sw	€
22.197.0600	M6	1	80	19	6	4.9	20,14
22.197.0800	M8	1.25	90	22	8	6.2	24,09
22.197.1000	M10	1.5	100	24	10	8	27,90



> 22.198 INTERNATIONAL TOOLS

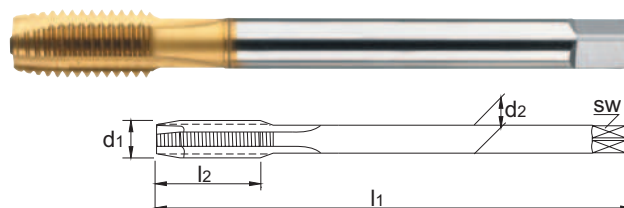
NL ECO PRO HSS-E Machinetap Metrisch, TiN
 FR Taraud machine HSS-E ECO PRO Métrique, TiN
 ES Macho máquina HSS-E ECO PRO Métrica, TiN
 DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, TiN
 EN ECO PRO HSS-E Machine Tap Metric Coarse, TiN



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	€
22.198.1200	M12	1.75	110	28	9	7	34,60

Ref.	d1	P	l1	l2	d2	sw	€
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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 Durchgangslöcher und Sacklöcher
 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		FormB 3,5-5	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

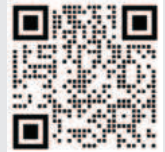
Ref.	d1	P	l1	l2	d2	sw	€
22.200.0100	M1	0.25	40	5.5	2.5	2.1	40,70
22.200.0110	M1,1	0.25	40	5.5	2.5	2.1	36,60
22.200.0120	M1,2	0.25	40	5.5	2.5	2.1	33,25
22.200.0140	M1,4	0.3	40	7	2.5	2.1	31,00
22.200.0160	M1,6	0.35	40	8	2.5	2.1	27,80
22.200.0170	M1,7	0.35	40	8	2.5	2.1	25,45
22.200.0180	M1,8	0.35	40	8	2.5	2.1	23,88
22.200.0200	M2	0.4	45	8	2.8	2.1	25,90
22.200.0220	M2,2	0.45	45	9	2.8	2.1	26,45
22.200.0230	M2,3	0.4	45	9	2.8	2.1	27,00
22.200.0250	M2,5	0.45	50	9	2.8	2.1	24,12

Ref.	d1	P	l1	l2	d2	sw	€
22.200.0260	M2,6	0.45	50	9	2.8	2.1	24,32
22.200.0300	M3	0.5	56	11	3.5	2.7	19,79
22.200.0350	M3,5	0.6	56	12	4	3	21,84
22.200.0400	M4	0.7	63	13	4.5	3.4	19,81
22.200.0450	M4,5	0.75	70	16	6	4.9	20,65
22.200.0500	M5	0.8	70	16	6	4.9	20,65
22.200.0600	M6	1	80	19	6	4.9	20,65
22.200.0700	M7	1	80	19	7	5.5	24,51
22.200.0800	M8	1.25	90	22	8	6.2	24,17
22.200.0900	M9	1.25	90	22	9	7	28,45
22.200.1000	M10	1.5	100	24	10	8	28,45



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



www.phantom.eu

> 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		DIN 376	3xD		FormB 3,5-5	ISO 2 6H	UNI		
										
≤600 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	€
22.201.0200	M2	0.4	45	4	1.4		28,45
22.201.0250	M2,5	0.45	50	5	1.8		23,88
22.201.0300	M3	0.5	56	11	2.2		22,94
22.201.0400	M4	0.7	63	13	2.8	2.1	23,21
22.201.0500	M5	0.8	70	16	3.5	2.7	23,21
22.201.0600	M6	1	80	19	4.5	3.4	23,21
22.201.0700	M7	1	80	19	5.5	4.3	24,50
22.201.0800	M8	1.25	90	22	6	4.9	27,05
22.201.0900	M9	1.25	90	22	7	5.5	38,90
22.201.1000	M10	1.5	100	24	7	5.5	31,55
22.201.1200	M12	1.75	110	28	9	7	36,75
22.201.1400	M14	2	110	30	11	9	46,80
22.201.1600	M16	2	110	32	12	9	54,35

Ref.	d1	P	l1	l2	d2	sw	€
22.201.1800	M18	2.5	125	34	14	11	72,65
22.201.2000	M20	2.5	140	34	16	12	80,50
22.201.2200	M22	2.5	140	34	18	14.5	100,70
22.201.2400	M24	3	160	38	18	14.5	107,70
22.201.2700	M27	3	160	38	20	16	152,20
22.201.3000	M30	3.5	180	45	22	18	186,05
22.201.3300	M33	3.5	180	50	25	20	223,40
22.201.3600	M36	4	200	56	28	22	287,00
22.201.3900	M39	4	200	60	32	24	421,00
22.201.4200	M42	4.5	200	60	32	24	440,00
22.201.4500	M45	4.5	220	65	36	29	509,00
22.201.4800	M48	5	250	70	36	29	598,00
22.201.5200	M52	5	250	70	40	32	772,00



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

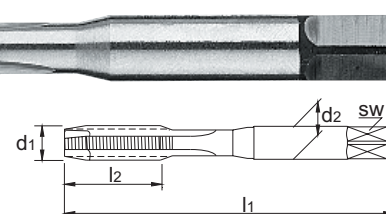
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> 22.205 Phantom

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	FormB 3,5-5	ISO 2 6H
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 52 CuAlFe
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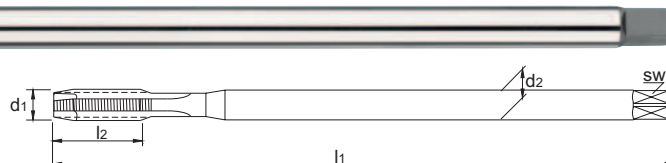
12-17	10-15	7-12	3-6	15-20	5-12
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Ref.	d1	P	l1	l2	d2	sw	€
22.205.0200	M2	0.4	41	8	2.5	2	20,29
22.205.0250	M2,5	0.45	44	9.5	2.8	2.24	17,87
22.205.0300	M3	0.5	48	11	3.15	2.5	13,40
22.205.0350	M3,5	0.6	50	13	3.55	2.8	17,01
22.205.0400	M4	0.7	53	13	4	3.15	13,40
22.205.0450	M4,5	0.75	58	16	5	4	17,83
22.205.0500	M5	0.8	58	16	5	4	13,68
22.205.0600	M6	1	66	19	6.3	5	13,87
22.205.0700	M7	1	66	19	7.1	5.6	17,93
22.205.0800	M8	1.25	72	22	8	6.3	17,93
22.205.0900	M9	1.25	72	22	9	7.1	24,20

Ref.	d1	P	l1	l2	d2	sw	€
22.205.1000	M10	1.5	80	24	10	8	22,08
22.205.1200	M12	1.75	89	29	9	7.1	28,15
22.205.1400	M14	2	95	30	11.2	9	36,55
22.205.1600	M16	2	102	32	12.5	10	45,60
22.205.1800	M18	2.5	112	37	14	11.2	58,80
22.205.2000	M20	2.5	112	37	14	11.2	67,70
22.205.2200	M22	2.5	118	38	16	12.5	86,80
22.205.2400	M24	3	130	45	18	14	99,65
22.205.2700	M27	3	135	45	20	16	127,75
22.205.3000	M30	3.5	138	48	20	16	169,90

> 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	60°	NORM	3xD	FormB 3,5-5	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 ≤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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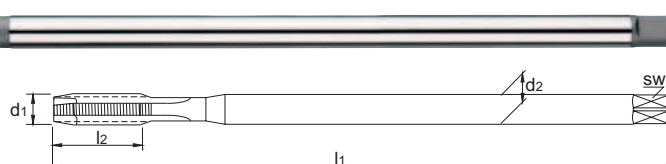
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8
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Ref.	d1	P	l1	l2	d2	sw	€
22.350.0400	M4	0.7	126	13	4.5	3.4	47,55
22.350.0500	M5	0.8	140	15	6	4.9	51,45

Ref.	d1	P	l1	l2	d2	sw	€
22.350.0600	M6	1	160	17	6	4.9	53,10
22.350.0800	M8	1.25	180	20	8	6.2	60,15

> 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	60°	NORM	3xD	FormB 3,5-5	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 ≤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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15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	8-15	2-8
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Ref.	d1	P	l1	l2	d2	sw	€
22.351.0800	M8	1.25	180	20	6	4.9	58,20
22.351.1000	M10	1.5	200	22	7	5.5	70,70
22.351.1200	M12	1.75	220	24	9	7	81,55

Ref.	d1	P	l1	l2	d2	sw	€
22.351.1600	M16	2	220	32	12	9	120,25
22.351.2000	M20	2.5	280	32	16	12	169,30
22.351.2400	M24	3	320	34	18	14.5	223,95



> 22.595 INTERNATIONAL TOOLS

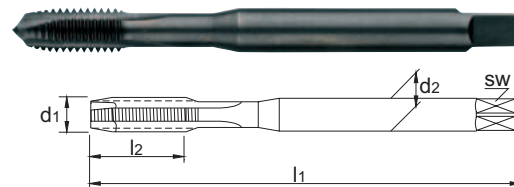
- NL ECO PRO HSS-E Machinetap Metrisch, stoomontlaten, roestvaststaal
FR Taraud machine HSS-E ECO PRO Métrique, vaporisé, Inox
ES Macho máquina HSS-E ECO PRO Métrica, vaporizada, acero inoxidable
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
EN ECO PRO HSS-E Machine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



15-20 7-10

Ref.	d1	P	l1	l2	d2	sw	€
22.595.0300	M3	0.5	56	11	3.5	2.7	15,63
22.595.0400	M4	0.7	63	13	4.5	3.4	15,85
22.595.0500	M5	0.8	70	16	6	4.9	16,79

Ref.	d1	P	l1	l2	d2	sw	€
22.595.0600	M6	1	80	19	6	4.9	16,81
22.595.0800	M8	1.25	90	22	8	6.2	19,02
22.595.1000	M10	1.5	100	24	10	8	21,86



> 22.596 INTERNATIONAL TOOLS

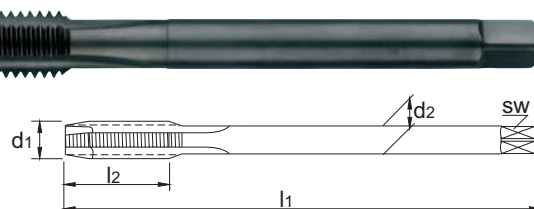
- NL ECO PRO HSS-E Machinetap Metrisch, stoomontlaten, roestvaststaal
FR Taraud machine HSS-E ECO PRO Métrique, vaporisé, Inox
ES Macho máquina HSS-E ECO PRO Métrica, vaporizada, acero inoxidable
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
EN ECO PRO HSS-E Machine 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	27,30
22.596.1600	M16	2	110	32	12	9	39,60

Ref.	d1	P	l1	l2	d2	sw	€
22.596.2000	M20	2.5	140	34	16	12	59,00



> 22.600 Phantom

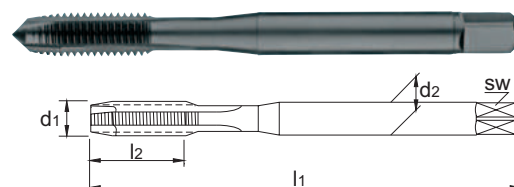
- NL HSS-E PM Machinetap Metrisch, stoomontlaten, roestvaststaal
FR Taraud machine HSS-E PM Métrique, vaporisé, Inox
ES Macho máquina HSS-E PM Métrica, vaporizada, acero inoxidable
DE HSS-E PM Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
EN HSS-E PM Machine Tap Metric Coarse, steam 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	23,97
22.600.0400	M4	0.7	63	13	4.5	3.4	23,97
22.600.0500	M5	0.8	70	16	6	4.9	24,28

Ref.	d1	P	l1	l2	d2	sw	€
22.600.0600	M6	1	80	19	6	4.9	24,28
22.600.0800	M8	1.25	90	22	8	6.2	30,35
22.600.1000	M10	1.5	100	24	10	8	38,45



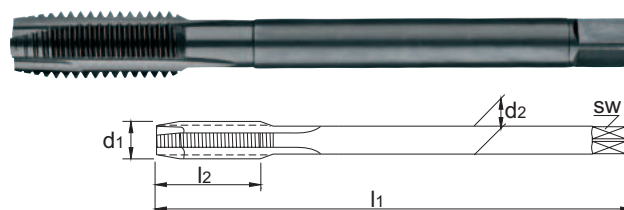
> 22.601 Phantom

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	30,35
22.601.1000	M10	1.5	100	24	7	5.5	38,45
22.601.1200	M12	1.75	110	28	9	7	50,95
22.601.1400	M14	2	110	30	11	9	64,60
22.601.1600	M16	2	110	32	12	9	76,50
22.601.1800	M18	2.5	125	34	14	11	103,45



Ref.	d1	P	l1	l2	d2	sw	€
22.601.2000	M20	2.5	140	34	16	12	122,75
22.601.2200	M22	2.5	140	34	18	14.5	155,80
22.601.2400	M24	3	160	38	18	14.5	170,00
22.601.2700	M27	3	160	38	20	16	257,00
22.601.3000	M30	3.5	180	45	22	18	319,00

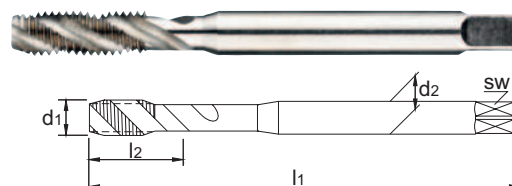
> 23.291 INTERNATIONAL TOOLS

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



12-17 9-15 7-12 20-30

Ref.	d1	P	l1	l2	d2	sw	€
23.291.0300	M3	0.5	56	11	3.5	2.7	6,92
23.291.0400	M4	0.7	63	13	4.5	3.4	7,05
23.291.0500	M5	0.8	70	16	6	4.9	7,20



Ref.	d1	P	l1	l2	d2	sw	€
23.291.0600	M6	1	80	19	6	4.9	8,88
23.291.0800	M8	1.25	90	22	8	6.2	11,35
23.291.1000	M10	1.5	100	24	10	8	14,55

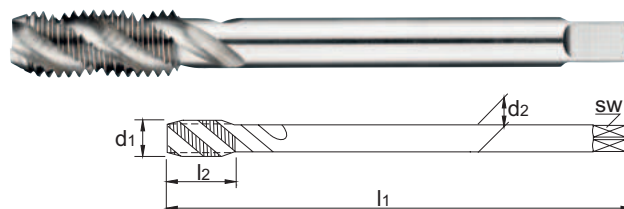
> 23.292 INTERNATIONAL TOOLS

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



12-17 9-15 7-12 20-30

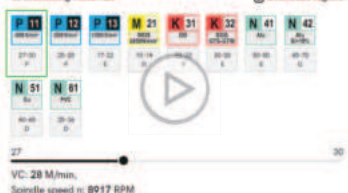
Ref.	d1	P	l1	l2	d2	sw	€
23.292.1200	M12	1.75	110	28	9	7	15,94



Ref.	d1	P	l1	l2	d2	sw	€
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To machining materials

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NL Uitleg calculatietool
 FR Regardez la vidéo d'instruction de l'outil de calcul
 ES Explicación de la herramienta de cálculo
 DE Erläuterung Rechner
 EN Calculation tool explained

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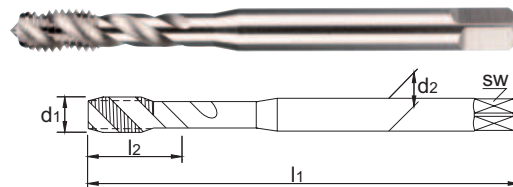
**> 23.295 INTERNATIONAL TOOLS**

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



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	18,70
23.295.0300	M3	0.5	56	11	3.5	2.7	13,38
23.295.0400	M4	0.7	63	13	4.5	3.4	13,38
23.295.0500	M5	0.8	70	16	6	4.9	13,67

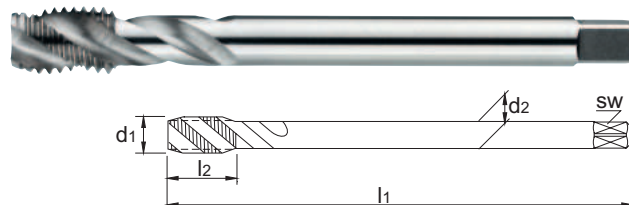
**> 23.296 INTERNATIONAL TOOLS**

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



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	21,17
23.296.1200	M12	1.75	110	28	9	7	24,84
23.296.1400	M14	2	110	30	11	9	30,85
23.296.1600	M16	2	110	32	12	9	34,00
23.296.2000	M20	2.5	140	34	16	12	49,95



Ref.	d1	P	l1	l2	d2	sw	€
23.296.2200	M22	2.5	140	34	18	14.5	67,25
23.296.2400	M24	3	160	38	18	14.5	63,75
23.296.2700	M27	3	160	38	20	16	97,30
23.296.3000	M30	3.5	180	45	22	18	122,30

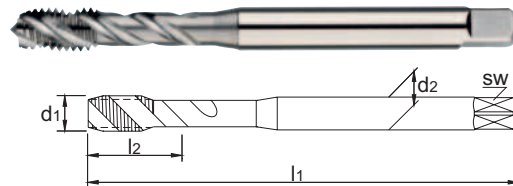
> 23.300 Phantom

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



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	25,95
23.300.0220	M2,2	0.45	45	9	2.8	2.1	32,85
23.300.0230	M2,3	0.4	45	9	2.8	2.1	33,75
23.300.0250	M2,5	0.45	50	9	2.8	2.1	24,76
23.300.0260	M2,6	0.45	50	9	2.8	2.1	29,15
23.300.0300	M3	0.5	56	11	3.5	2.7	20,92
23.300.0350	M3,5	0.6	56	12	4	3	23,79



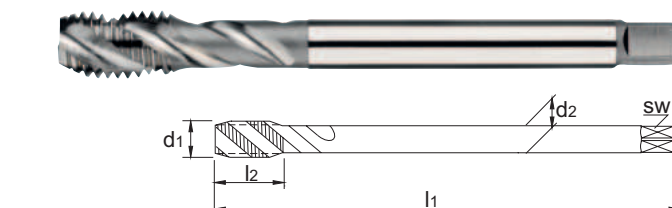
Ref.	d1	P	l1	l2	d2	sw	€
23.300.0400	M4	0.7	63	13	4.5	3.4	20,92
23.300.0500	M5	0.8	70	16	6	4.9	21,35
23.300.0600	M6	1	80	19	6	4.9	22,16
23.300.0700	M7	1	80	19	7	5.5	28,05
23.300.0800	M8	1.25	90	22	8	6.2	26,40
23.300.1000	M10	1.5	100	24	10	8	32,40

> 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°	FormC 2-3	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/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	€
23.301.0600	M6	1	80	19	4.5	3.4	24,15
23.301.0800	M8	1.25	90	22	6	4.9	27,60
23.301.0900	M9	1.25	90	22	7	5.5	48,65
23.301.1000	M10	1.5	100	24	7	5.5	33,70
23.301.1200	M12	1.75	110	28	9	7	41,80
23.301.1400	M14	2	110	30	11	9	53,20
23.301.1600	M16	2	110	32	12	9	61,90
23.301.1800	M18	2.5	125	34	14	11	82,60



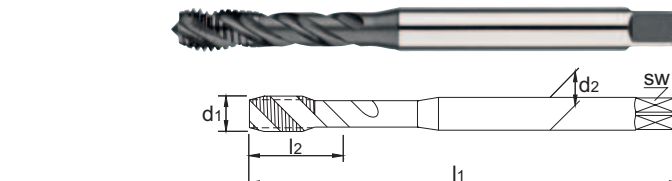
Ref.	d1	P	l1	l2	d2	sw	€
23.301.2000	M20	2.5	140	34	16	12	92,05
23.301.2200	M22	2.5	140	34	18	14.5	105,35
23.301.2400	M24	3	160	38	18	14.5	119,70
23.301.2700	M27	3	160	38	20	16	160,20
23.301.3000	M30	3.5	180	45	22	18	204,05
23.301.3300	M33	3.5	180	50	25	20	256,00
23.301.3600	M36	4	200	56	28	22	346,00

> 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

HSS-E	M	60°	OX.	DIN 371	2,5xD		FormC 2-3	ISO 2 6H	INOX
P 14	M 21	M 22	S 71						
≤1400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	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	25,50
23.450.0400	M4	0.7	63	13	4.5	3.4	25,85
23.450.0500	M5	0.8	70	16	6	4.9	26,65



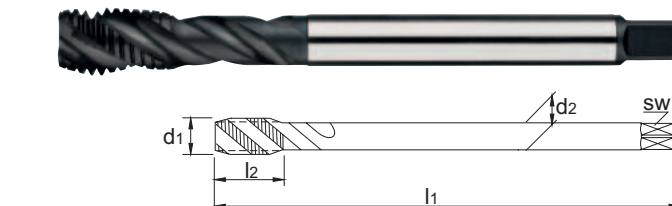
Ref.	d1	P	l1	l2	d2	sw	€
23.450.0600	M6	1	80	19	6	4.9	26,75
23.450.0800	M8	1.25	90	22	8	6.2	31,85
23.450.1000	M10	1.5	100	24	10	8	38,25

> 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

HSS-E	M	60°	OX.	DIN 376	2,5xD		FormC 2-3	ISO 2 6H	INOX
P 14	M 21	M 22	S 71						
≤1400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	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	34,55
23.451.1000	M10	1.5	100	24	7	5.5	41,45
23.451.1200	M12	1.75	110	28	9	7	49,65
23.451.1400	M14	2	110	30	11	9	61,35
23.451.1600	M16	2	110	32	12	9	72,45
23.451.1800	M18	2.5	125	34	14	11	100,15
23.451.2000	M20	2.5	140	34	16	12	108,15
23.451.2200	M22	2.5	140	34	18	14.5	134,60
23.451.2400	M24	3	160	38	18	14.5	140,00



Ref.	d1	P	l1	l2	d2	sw	€
23.451.2700	M27	3	160	38	20	16	200,80
23.451.3000	M30	3.5	180	45	22	18	235,65
23.451.3300	M33	3.5	180	50	25	20	284,00
23.451.3600	M36	4	200	56	28	22	333,00
23.451.3900	M39	4	200	60	32	24	399,00
23.451.4200	M42	4.5	200	60	32	24	465,00
23.451.4500	M45	4.5	220	65	36	29	555,00
23.451.4800	M48	5	250	70	36	29	695,00



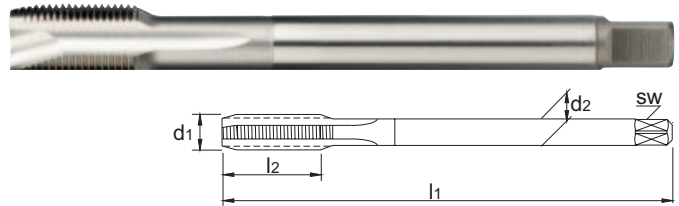
> 23.615

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



Ref.	d1	P	l1	l2	d2	sw	€
23.615.0505	MF5	0.5	70	12	3.5	2.7	21,59
23.615.0605	MF6	0.5	80	14	4.5	3.4	21,82
23.615.0607	MF6	0.75	80	14	4.5	3.4	21,67
23.615.0807	MF8	0.75	80	19	6	4.9	24,11
23.615.0810	MF8	1	90	22	6	4.9	21,82
23.615.1007	MF10	0.75	90	20	7	5.5	31,15
23.615.1010	MF10	1	90	20	7	5.5	22,84
23.615.1012	MF10	1.25	100	24	7	5.5	28,70
23.615.1210	MF12	1	100	22	9	7	26,40
23.615.1212	MF12	1.25	100	22	9	7	29,50
23.615.1215	MF12	1.5	100	22	9	7	24,97
23.615.1410	MF14	1	100	22	11	9	34,75
23.615.1412	MF14	1.25	100	22	11	9	33,35



Ref.	d1	P	l1	l2	d2	sw	€
23.615.1415	MF14	1.5	100	22	11	9	32,70
23.615.1610	MF16	1	100	22	12	9	39,35
23.615.1615	MF16	1.5	100	22	12	9	37,45
23.615.1810	MF18	1	110	25	14	11	50,20
23.615.1815	MF18	1.5	110	25	14	11	46,30
23.615.2010	MF20	1	125	25	16	12	54,25
23.615.2015	MF20	1.5	125	25	16	12	51,70
23.615.2020	MF20	2	140	25	16	12	70,60
23.615.2215	MF22	1.5	125	25	18	14.5	54,75
23.615.2415	MF24	1.5	140	28	18	14.5	60,35
23.615.2420	MF24	2	140	28	18	14.5	67,80
23.615.2515	MF25	1.5	140	28	18	14.5	108,15

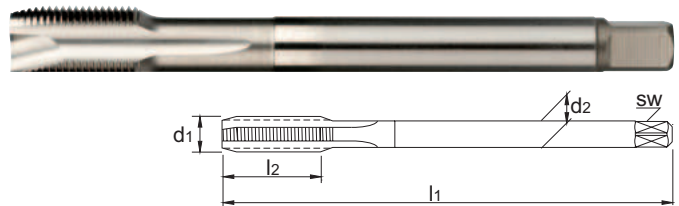
> 23.620

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



Ref.	d1	P	l1	l2	d2	sw	€
23.620.0303	MF3	0.35	56	8	2.2		31,55
23.620.0405	MF4	0.5	63	10	2.8	2.1	29,00
23.620.0505	MF5	0.5	70	11	3.5	2.7	30,00
23.620.0605	MF6	0.5	80	13	4.5	3.4	30,70
23.620.0607	MF6	0.75	80	13	4.5	3.4	30,00
23.620.0705	MF7	0.5	80	13	5.5	4.3	45,00
23.620.0707	MF7	0.75	80	13	5.5	4.3	42,30
23.620.0805	MF8	0.5	80	13	6	4.9	37,00
23.620.0807	MF8	0.75	80	13	6	4.9	35,35
23.620.0810	MF8	1	90	20	6	4.9	31,60
23.620.0907	MF9	0.75	90	20	7	5.5	43,00
23.620.0910	MF9	1	90	20	7	5.5	41,90
23.620.1005	MF10	0.5	90	16	7	5.5	45,60
23.620.1007	MF10	0.75	90	16	7	5.5	44,45
23.620.1010	MF10	1	90	16	7	5.5	35,05
23.620.1012	MF10	1.25	100	22	7	5.5	36,45
23.620.1110	MF11	1	90	20	8	6.2	52,30
23.620.1112	MF11	1.25	90	20	8	6.2	34,40
23.620.1205	MF12	0.5	100	22	9	7	46,35
23.620.1207	MF12	0.75	100	22	9	7	44,20
23.620.1210	MF12	1	100	22	9	7	37,70
23.620.1212	MF12	1.25	100	22	9	7	44,20
23.620.1215	MF12	1.5	100	22	9	7	38,95
23.620.1310	MF13	1	100	22	11	9	71,75
23.620.1410	MF14	1	100	22	11	9	54,05
23.620.1412	MF14	1.25	100	22	11	9	51,70
23.620.1415	MF14	1.5	100	22	11	9	51,70
23.620.1510	MF15	1	100	22	12	9	66,00
23.620.1515	MF15	1.5	100	22	12	9	67,80
23.620.1610	MF16	1	100	22	12	9	58,35
23.620.1612	MF16	1.25	100	22	12	9	55,00
23.620.1615	MF16	1.5	100	22	12	9	55,00
23.620.1810	MF18	1	110	25	14	11	79,00
23.620.1815	MF18	1.5	110	25	14	11	71,70
23.620.1820	MF18	2	125	30	14	11	85,10
23.620.2010	MF20	1	125	25	16	12	83,85
23.620.2015	MF20	1.5	125	25	16	12	77,85



Ref.	d1	P	l1	l2	d2	sw	€
23.620.2020	MF20	2	140	32	16	12	102,05
23.620.2210	MF22	1	125	25	18	14.5	116,20
23.620.2212	MF22	1.25	125	25	18	14.5	103,15
23.620.2215	MF22	1.5	125	25	18	14.5	89,15
23.620.2220	MF22	2	140	32	18	14.5	116,65
23.620.2410	MF24	1	140	28	18	14.5	123,90
23.620.2415	MF24	1.5	140	28	18	14.5	104,05
23.620.2420	MF24	2	140	28	18	14.5	132,60
23.620.2510	MF25	1	140	28	18	14.5	195,45
23.620.2515	MF25	1.5	140	28	18	14.5	177,60
23.620.2520	MF25	2	140	28	18	14.5	182,55
23.620.2615	MF26	1.5	140	28	18	14.5	145,10
23.620.2715	MF27	1.5	140	28	20	16	148,05
23.620.2720	MF27	2	140	28	20	16	162,85
23.620.2815	MF28	1.5	140	28	20	16	150,75
23.620.3010	MF30	1	150	28	22	18	180,35
23.620.3015	MF30	1.5	150	28	22	18	168,00
23.620.3020	MF30	2	150	28	22	18	173,15
23.620.3215	MF32	1.5	150	28	22	18	202,65
23.620.3315	MF33	1.5	160	30	25	20	274,00
23.620.3320	MF33	2	160	30	25	20	274,00
23.620.3415	MF34	1.5	170	30	28	22	280,00
23.620.3515	MF35	1.5	170	30	28	22	280,00
23.620.3615	MF36	1.5	170	30	28	22	269,00
23.620.3620	MF36	2	170	30	28	22	284,00
23.620.3630	MF36	3	200	50	28	22	301,00
23.620.3815	MF38	1.5	170	30	28	22	316,00
23.620.4015	MF40	1.5	170	30	32	24	303,00
23.620.4215	MF42	1.5	170	30	32	24	380,00
23.620.4220	MF42	2	170	30	32	24	407,00
23.620.4230	MF42	3	200	45	32	24	426,00
23.620.4515	MF45	1.5	180	32	36	29	436,00
23.620.4520	MF45	2	180	32	36	29	450,00
23.620.4815	MF48	1.5	190	32	36	29	529,00
23.620.5015	MF50	1.5	190	32	36	29	634,00
23.620.5215	MF52	1.5	190	32	40	32	654,00

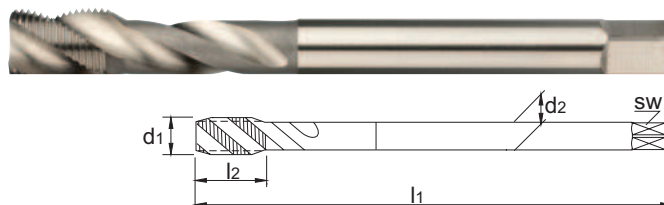
> 23.835 INTERNATIONAL TOOLS

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



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	22,84
23.835.1010	MF10	1	90	12	7	5.5	24,55
23.835.1012	MF10	1.25	100	12	7	5.5	33,45
23.835.1210	MF12	1	100	14	9	7	28,85
23.835.1212	MF12	1.25	100	14	9	7	37,45



Ref.	d1	P	l1	l2	d2	sw	€
23.835.1215	MF12	1.5	100	14	9	7	27,45
23.835.1415	MF14	1.5	100	16	11	9	35,50
23.835.1615	MF16	1.5	100	16	12	9	43,10
23.835.1815	MF18	1.5	110	20	14	11	48,55
23.835.2015	MF20	1.5	125	20	16	12	55,60

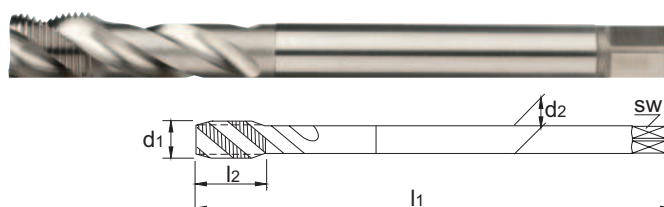
> 23.840 Phantom

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



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	29,10
23.840.0505	MF5	0.5	70	11	3.5	2.7	29,75
23.840.0605	MF6	0.5	80	13	4.5	3.4	29,75
23.840.0607	MF6	0.75	80	13	4.5	3.4	30,35
23.840.0807	MF8	0.75	80	13	6	4.9	36,05
23.840.0810	MF8	1	90	20	6	4.9	35,25
23.840.0910	MF9	1	90	20	7	5.5	42,60
23.840.1007	MF10	0.75	90	16	7	5.5	42,70
23.840.1010	MF10	1	90	16	7	5.5	37,90
23.840.1012	MF10	1.25	100	22	7	5.5	37,90
23.840.1110	MF11	1	90	20	8	6.2	47,60
23.840.1210	MF12	1	100	22	9	7	50,30
23.840.1212	MF12	1.25	100	22	9	7	50,50
23.840.1215	MF12	1.5	100	22	9	7	43,55
23.840.1310	MF13	1	100	22	11	9	52,20
23.840.1410	MF14	1	100	22	11	9	62,75
23.840.1412	MF14	1.25	100	22	11	9	62,75
23.840.1415	MF14	1.5	100	22	11	9	57,05
23.840.1510	MF15	1	100	22	12	9	69,45
23.840.1515	MF15	1.5	100	22	12	9	69,45
23.840.1610	MF16	1	100	22	12	9	69,45
23.840.1615	MF16	1.5	100	22	12	9	69,25
23.840.1810	MF18	1	110	25	14	11	91,25
23.840.1815	MF18	1.5	110	25	14	11	89,15
23.840.1820	MF18	2	125	30	14	11	85,70



Ref.	d1	P	l1	l2	d2	sw	€
23.840.2010	MF20	1	125	25	16	12	97,85
23.840.2015	MF20	1.5	125	25	16	12	95,95
23.840.2020	MF20	2	140	32	16	12	97,85
23.840.2210	MF22	1	125	25	18	14.5	122,60
23.840.2215	MF22	1.5	125	25	18	14.5	108,35
23.840.2220	MF22	2	140	32	18	14.5	111,10
23.840.2410	MF24	1	140	28	18	14.5	129,60
23.840.2415	MF24	1.5	140	28	18	14.5	128,20
23.840.2420	MF24	2	140	28	18	14.5	129,60
23.840.2515	MF25	1.5	140	28	18	14.5	206,40
23.840.2615	MF26	1.5	140	28	18	14.5	164,95
23.840.2715	MF27	1.5	140	28	20	16	184,05
23.840.2720	MF27	2	140	28	20	16	185,50
23.840.2815	MF28	1.5	140	28	20	16	186,90
23.840.3010	MF30	1	150	28	22	18	218,20
23.840.3015	MF30	1.5	150	28	22	18	210,30
23.840.3020	MF30	2	150	28	22	18	217,60
23.840.3215	MF32	1.5	150	28	22	18	243,35
23.840.3315	MF33	1.5	160	30	25	20	286,00
23.840.3320	MF33	2	160	30	25	20	288,00
23.840.3515	MF35	1.5	170	30	28	22	334,00
23.840.3615	MF36	1.5	170	30	28	22	300,00
23.840.3620	MF36	2	170	30	28	22	310,00
23.840.3630	MF36	3	200	50	28	22	319,00
23.840.4015	MF40	1.5	170	30	32	24	359,00

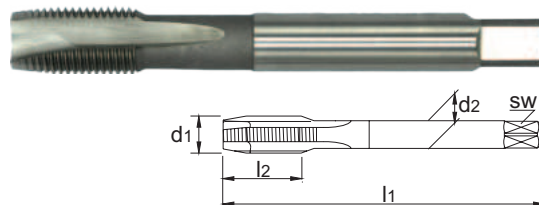


> 25.095 INTERNATIONAL TOOLS

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



Ref.	d1	TPI	l1	l2	d2	sw	€
25.095.0973	G 1/8	28	90	20	7	5.5	31,50
25.095.1316	G 1/4	19	100	22	11	9	42,25
25.095.1666	G 3/8	19	100	22	12	9	52,40



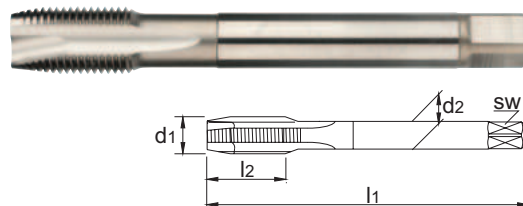
Ref.	d1	TPI	l1	l2	d2	sw	€
25.095.2096	G 1/2	14	125	25	16	12	70,60
25.095.2644	G 3/4	14	140	28	20	16	111,10
25.095.3325	G 1	11	160	30	25	20	156,60

> 25.097 Phantom

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



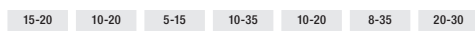
Ref.	d1	TPI	l1	l2	d2	sw	€
25.097.0973	G 1/8	28	90	20	7	5.5	33,90
25.097.1316	G 1/4	19	100	22	11	9	45,80
25.097.1666	G 3/8	19	100	22	12	9	54,10
25.097.2096	G 1/2	14	125	25	16	12	77,75
25.097.2291	G 5/8	14	125	25	18	14.5	106,60
25.097.2644	G 3/4	14	140	28	20	16	137,90



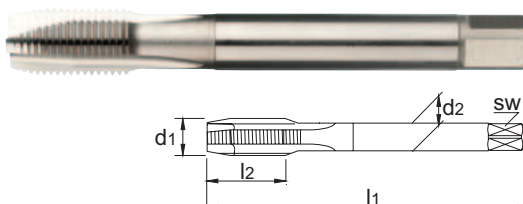
Ref.	d1	TPI	l1	l2	d2	sw	€
25.097.3020	G 7/8	14	150	28	22	18	168,30
25.097.3325	G 1	11	160	30	25	20	198,10
25.097.3790	G 1.1/8	11	170	30	28	22	270,00
25.097.4191	G 1.1/4	11	170	30	32	24	310,00
25.097.4780	G 1.1/2	11	190	32	36	29	441,00

> 25.100 Phantom

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



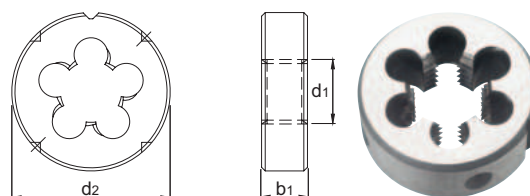
Ref.	d1	TPI	l1	l2	d2	sw	€
25.100.0973	G 1/8	28	90	20	7	5.5	33,90
25.100.1316	G 1/4	19	100	22	11	9	45,80
25.100.1666	G 3/8	19	100	22	12	9	54,10
25.100.2096	G 1/2	14	125	25	16	12	77,75
25.100.2291	G 5/8	14	125	25	18	14.5	98,20
25.100.2644	G 3/4	14	140	28	20	16	125,30



Ref.	d1	TPI	l1	l2	d2	sw	€
25.100.3020	G 7/8	14	150	28	22	18	161,85
25.100.3325	G 1	11	160	30	25	20	193,20
25.100.3790	G 1.1/8	11	170	30	28	22	263,00
25.100.4191	G 1.1/4	11	170	30	32	24	310,00
25.100.4780	G 1.1/2	11	190	32	36	29	441,00

> 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



Ref.	d1	P	d2	b1	€
27.100.0200	M2	0.4	16	5	9,05
27.100.0250	M2,5	0.45	16	5	9,05
27.100.0300	M3	0.5	20	5	8,02
27.100.0400	M4	0.7	20	5	8,02
27.100.0500	M5	0.8	20	7	8,02
27.100.0600	M6	1	20	7	8,02
27.100.0700	M7	1	25	9	9,56

Ref.	d1	P	d2	b1	€
27.100.0800	M8	1.25	25	9	9,56
27.100.1000	M10	1.5	30	11	16,04
27.100.1200	M12	1.75	38	14	22,51
27.100.1400	M14	2	38	14	22,51
27.100.1600	M16	2	45	18	42,05
27.100.1800	M18	2.5	45	18	42,05
27.100.2000	M20	2.5	45	18	42,05

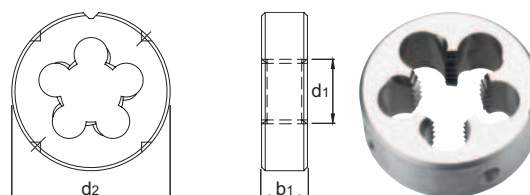
Ref.	d1	P	d2	b1	€
27.100.2200	M22	2.5	55	22	70,60
27.100.2400	M24	3	55	22	70,60
27.100.2700	M27	3	65	25	101,45
27.100.3000	M30	3.5	65	25	101,45
27.100.3300	M33	3.5	65	25	101,45
27.100.3600	M36	4	65	25	101,45

> 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



10-14	6-10	5-8	4-6	15-25
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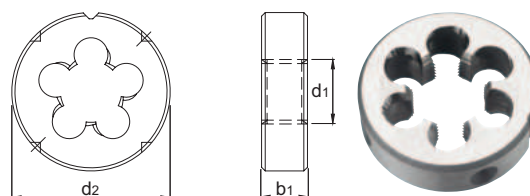
Ref.	d1	P	d2	b1	€
27.120.0100	M1	0.25	16	5	73,50
27.120.0120	M1,2	0.25	16	5	69,20
27.120.0140	M1,4	0.3	16	5	63,40
27.120.0160	M1,6	0.35	16	5	54,85
27.120.0180	M1,8	0.35	16	5	57,90
27.120.0200	M2	0.4	16	5	43,45
27.120.0220	M2,2	0.45	16	5	65,60
27.120.0230	M2,3	0.4	16	5	47,40
27.120.0250	M2,5	0.45	16	5	39,60
27.120.0260	M2,6	0.45	16	5	42,10
27.120.0300	M3	0.5	20	5	36,80
27.120.0350	M3,5	0.6	20	5	39,50

Ref.	d1	P	d2	b1	€
27.120.0400	M4	0.7	20	5	36,80
27.120.0500	M5	0.8	20	7	36,80
27.120.0600	M6	1	20	7	36,80
27.120.0700	M7	1	25	9	45,80
27.120.0800	M8	1.25	25	9	40,40
27.120.0900	M9	1.25	25	9	52,45
27.120.1000	M10	1.5	30	11	48,65
27.120.1100	M11	1.5	30	11	65,30
27.120.1200	M12	1.75	38	14	63,90
27.120.1400	M14	2	38	14	65,25
27.120.1600	M16	2	45	18	82,95
27.120.1800	M18	2.5	45	18	88,45

Ref.	d1	P	d2	b1	€
27.120.2000	M20	2.5	45	18	88,45
27.120.2200	M22	2.5	55	22	126,50
27.120.2400	M24	3	55	22	126,50
27.120.2700	M27	3	65	25	190,70
27.120.3000	M30	3.5	65	25	190,70
27.120.3300	M33	3.5	65	25	207,10
27.120.3600	M36	4	65	25	195,05
27.120.3900	M39	4	75	30	324,00
27.120.4200	M42	4.5	75	30	324,00
27.120.4500	M45	4.5	90	36	510,00
27.120.4800	M48	5	90	36	486,00
27.120.5200	M52	5	90	36	514,00

> 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



Ref.	d1	P	d2	b1	€
27.200.0403	MF4	0.35	20	5	8,89
27.200.0405	MF4	0.5	20	5	8,89
27.200.0505	MF5	0.5	20	5	8,89
27.200.0605	MF6	0.5	20	5	8,89
27.200.0607	MF6	0.75	20	7	9,56
27.200.0707	MF7	0.75	25	9	9,73
27.200.0805	MF8	0.5	25	9	9,73
27.200.0807	MF8	0.75	25	9	9,56
27.200.0810	MF8	1	25	9	9,56
27.200.0910	MF9	1	25	9	9,73

Ref.	d1	P	d2	b1	€
27.200.1007	MF10	0.75	30	11	16,32
27.200.1010	MF10	1	30	11	16,04
27.200.1012	MF10	1.25	30	11	16,04
27.200.1210	MF12	1	38	10	22,51
27.200.1212	MF12	1.25	38	10	22,51
27.200.1215	MF12	1.5	38	10	22,51
27.200.1310	MF13	1	38	10	22,45
27.200.1410	MF14	1	38	10	22,51
27.200.1412	MF14	1.25	38	10	22,51
27.200.1415	MF14	1.5	38	10	22,51

Ref.	d1	P	d2	b1	€
27.200.1510	MF15	1	38	10	22,51
27.200.1610	MF16	1	45	14	42,05
27.200.1615	MF16	1.5	45	14	42,05
27.200.1810	MF18	1	45	14	42,05
27.200.1815	MF18	1.5	45	14	42,05
27.200.2010	MF20	1	45	14	42,05
27.200.2015	MF20	1.5	45	14	42,05
27.200.2215	MF22	1.5	55	16	70,60
27.200.2220	MF22	2	55	16	70,40
27.200.2415	MF24	1.5	55	16	70,60

**> 27.200 INTERNATIONAL TOOLS**

Ref.	d1	P	d2	b1	€
27.200.2420	MF24	2	55	16	70,60
27.200.2715	MF27	1.5	65	18	85,75

Ref.	d1	P	d2	b1	€
27.200.2720	MF27	2	65	18	85,75
27.200.3015	MF30	1.5	65	18	101,45

Ref.	d1	P	d2	b1	€
27.200.3020	MF30	2	65	18	101,45

> 27.220 Phantom

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

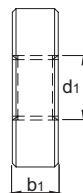
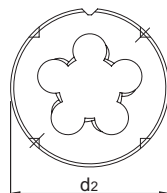


10-14	6-10	5-8	4-6	15-25
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Ref.	d1	P	d2	b1	€
27.220.0303	MF3	0.35	20	5	57,20
27.220.0403	MF4	0.35	20	5	59,40
27.220.0405	MF4	0.5	20	5	47,40
27.220.0505	MF5	0.5	20	5	46,35
27.220.0605	MF6	0.5	20	5	46,35
27.220.0607	MF6	0.75	20	7	46,10
27.220.0707	MF7	0.75	25	9	52,10
27.220.0805	MF8	0.5	25	9	68,60
27.220.0807	MF8	0.75	25	9	48,95
27.220.0810	MF8	1	25	9	48,15
27.220.0907	MF9	0.75	25	9	64,40
27.220.0910	MF9	1	25	9	58,75
27.220.1005	MF10	0.5	30	11	86,90
27.220.1007	MF10	0.75	30	11	64,45
27.220.1010	MF10	1	30	11	58,15
27.220.1012	MF10	1.25	30	11	63,15
27.220.1110	MF11	1	30	11	64,95
27.220.1205	MF12	0.5	38	10	112,60
27.220.1207	MF12	0.75	38	10	86,25
27.220.1210	MF12	1	38	10	75,95
27.220.1212	MF12	1.25	38	10	79,30
27.220.1215	MF12	1.5	38	10	69,95
27.220.1310	MF13	1	38	10	81,15
27.220.1405	MF14	0.5	38	10	137,25
27.220.1407	MF14	0.75	38	10	85,90
27.220.1410	MF14	1	38	10	76,45
27.220.1412	MF14	1.25	38	10	79,85
27.220.1415	MF14	1.5	38	10	69,95

Ref.	d1	P	d2	b1	€
27.220.1510	MF15	1	38	10	80,35
27.220.1515	MF15	1.5	38	10	90,35
27.220.1607	MF16	0.75	45	14	143,15
27.220.1610	MF16	1	45	14	105,75
27.220.1612	MF16	1.25	45	14	125,60
27.220.1615	MF16	1.5	45	14	95,55
27.220.1810	MF18	1	45	14	105,75
27.220.1812	MF18	1.25	45	14	140,30
27.220.1815	MF18	1.5	45	14	95,55
27.220.1820	MF18	2	45	14	117,75
27.220.2010	MF20	1	45	14	105,75
27.220.2015	MF20	1.5	45	14	95,55
27.220.2020	MF20	2	45	14	109,45
27.220.2210	MF22	1	55	16	140,85
27.220.2215	MF22	1.5	55	16	125,40
27.220.2220	MF22	2	55	16	150,45
27.220.2410	MF24	1	55	16	140,85
27.220.2415	MF24	1.5	55	16	125,40
27.220.2420	MF24	2	55	16	139,25
27.220.2510	MF25	1	55	16	177,30
27.220.2515	MF25	1.5	55	16	149,25
27.220.2520	MF25	2	55	16	192,20
27.220.2610	MF26	1	55	16	177,30
27.220.2615	MF26	1.5	55	16	149,25
27.220.2710	MF27	1	65	18	223,30
27.220.2715	MF27	1.5	65	18	185,85
27.220.2720	MF27	2	65	18	204,75
27.220.2815	MF28	1.5	65	18	185,85

Ref.	d1	P	d2	b1	€
27.220.2820	MF28	2	65	18	245,15
27.220.3010	MF30	1	65	19	213,90
27.220.3015	MF30	1.5	65	18	185,85
27.220.3020	MF30	2	65	18	204,75
27.220.3215	MF32	1.5	65	18	189,55
27.220.3315	MF33	1.5	65	18	196,05
27.220.3320	MF33	2	65	18	204,75
27.220.3415	MF34	1.5	65	18	226,65
27.220.3515	MF35	1.5	65	18	194,00
27.220.3615	MF36	1.5	65	18	194,00
27.220.3620	MF36	2	65	18	204,75
27.220.3630	MF36	3	65	25	260,00
27.220.3815	MF38	1.5	75	20	294,00
27.220.3920	MF39	2	75	20	327,00
27.220.3930	MF39	3	75	30	354,00
27.220.4015	MF40	1.5	75	20	294,00
27.220.4020	MF40	2	75	20	327,00
27.220.4215	MF42	1.5	75	20	294,00
27.220.4220	MF42	2	75	20	327,00
27.220.4230	MF42	3	75	30	354,00
27.220.4515	MF45	1.5	90	22	395,00
27.220.4520	MF45	2	90	22	435,00
27.220.4530	MF45	3	90	22	474,00
27.220.4815	MF48	1.5	90	22	395,00
27.220.4830	MF48	3	90	22	474,00
27.220.5015	MF50	1.5	90	22	395,00
27.220.5215	MF52	1.5	90	22	395,00

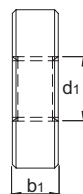
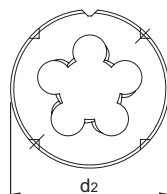
**> 27.500 INTERNATIONAL TOOLS**

NL ECO PRO HSS Ronde Snijplaat G (BSP)
FR Filière ronde HSS ECO PRO G (BSP)
ES Terraaja esférica HSS ECO PRO G (BSP)
DE ECO PRO HSS Runde Schneideisen G (BSP)
EN ECO PRO HSS Thread Die G (BSP)



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

Ref.	d1	TPI	d2	b1	€
27.500.3020	G 7/8	14	65	18	98,00
27.500.3325	G 1	11	65	18	98,00
27.500.4191	G 1.1/4	11	75	20	162,00
27.500.4432	G 1.3/8	11	90	22	108,40
27.500.4780	G 1.1/2	11	90	22	220,00
27.500.5961	G 2	11	105	22	470,00



> 27.520 Phantom

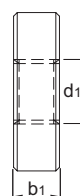
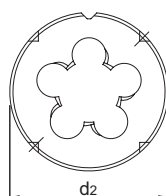
NL HSS Ronde Snijplaat schilaansnijding G (BSP)
 FR Filière ronde HSS coupe gun G (BSP)
 ES Terraja esférica HSS entrada corregida (gun) G (BSP)
 DE HSS Runde Schneideisen Schälanschnitt G (BSP)
 EN HSS Thread Die gun nosed G (BSP)



10-14	6-10	5-8	4-6	15-25
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Ref.	d1	TPI	d2	b1	€
27.520.0973	G 1/8	28	30	11	67,55
27.520.1316	G 1/4	19	38	10	67,55
27.520.1666	G 3/8	19	45	14	89,75
27.520.2096	G 1/2	14	45	14	89,75
27.520.2291	G 5/8	14	55	16	137,45
27.520.2644	G 3/4	14	55	16	136,40
27.520.3020	G 7/8	14	65	18	215,50

Ref.	d1	TPI	d2	b1	€
27.520.3325	G 1	11	65	18	190,05
27.520.3790	G 1.1/8	11	75	20	333,00
27.520.4191	G 1.1/4	11	75	20	282,00
27.520.4432	G 1.3/8	11	90	22	460,00
27.520.4780	G 1.1/2	11	90	22	390,00
27.520.5375	G 1.3/4	11	90	22	414,00
27.520.5961	G 2	11	105	22	503,00



> 27.700 INTERNATIONAL TOOLS

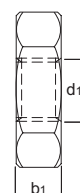
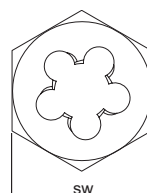
NL ECO PRO HSS Zeskante Snijmoer Metrisch
 FR Filière hexagonale HSS ECO PRO Métrique
 ES Terraja hexagonal HSS ECO PRO Métrica
 DE ECO PRO HSS Sechskant Schneideisen Metrisch
 EN ECO PRO HSS Hexagon Die Nut Metric Coarse



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	161,95
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	377,00
27.700.4800	M48	5	85	36	369,00
27.700.5200	M52	5	85	36	377,00



> 27.750 INTERNATIONAL TOOLS

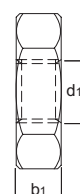
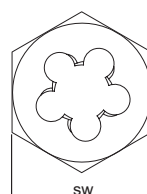
NL ECO PRO HSS Zeskante Snijmoer Metrisch Fijn
 FR Filière hexagonale HSS ECO PRO Métrique Fin
 ES Terraja hexagonal HSS ECO PRO Métrica Fina
 DE ECO PRO HSS Sechskant Schneideisen Metrisch Fein
 EN ECO PRO HSS Hexagon Die Nut Metric Fine



Ref.	d1	P	sw	b1	€
27.750.0303	MF3	0.35	19	5	36,60
27.750.0403	MF4	0.35	19	5	36,60
27.750.0505	MF5	0.5	19	5	36,60
27.750.0605	MF6	0.5	19	5	36,60
27.750.0607	MF6	0.75	19	7	36,60
27.750.0805	MF8	0.5	22	9	39,75
27.750.0807	MF8	0.75	22	9	39,75
27.750.0810	MF8	1	22	9	22,50
27.750.1007	MF10	0.75	27	11	39,75
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	55,45
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	77,40
27.750.1615	MF16	1.5	41	14	72,00
27.750.1810	MF18	1	41	14	72,00
27.750.1812	MF18	1.25	41	14	79,50
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	79,50
27.750.2015	MF20	1.5	41	14	72,00

Ref.	d1	P	sw	b1	€
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	176,75
27.750.2715	MF27	1.5	60	18	169,00
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	189,35
27.750.3015	MF30	1.5	60	18	169,00

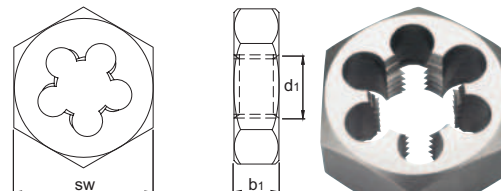
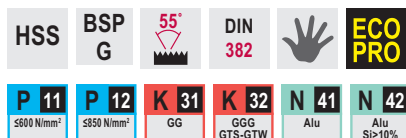


**> 27.750 INTERNATIONAL TOOLS**

Ref.	d1	P	sw	b1	€	Ref.	d1	P	sw	b1	€	Ref.	d1	P	sw	b1	€
27.750.3020	MF30	2	60	18	169,00	27.750.3820	MF38	2	70	20	332,00	27.750.4815	MF48	1.5	85	22	440,00
27.750.3215	MF32	1.5	60	18	169,00	27.750.4015	MF40	1.5	70	20	225,00	27.750.4820	MF48	2	85	22	440,00
27.750.3220	MF32	2	60	18	189,35	27.750.4020	MF40	2	70	20	312,00	27.750.4830	MF48	3	85	36	419,00
27.750.3315	MF33	1.5	60	18	189,35	27.750.4030	MF40	3	70	30	312,00	27.750.5015	MF50	1.5	85	22	385,00
27.750.3515	MF35	1.5	60	18	169,00	27.750.4215	MF42	1.5	70	20	312,00	27.750.5020	MF50	2	85	22	498,00
27.750.3520	MF35	2	60	18	177,80	27.750.4220	MF42	2	70	20	298,00	27.750.5215	MF52	1.5	85	22	385,00
27.750.3615	MF36	1.5	60	18	169,00	27.750.4230	MF42	3	70	30	298,00	27.750.5220	MF52	2	85	22	400,00
27.750.3620	MF36	2	60	18	169,00	27.750.4515	MF45	1.5	85	22	367,00	27.750.6020	MF60	2	100	22	649,00
27.750.3630	MF36	3	60	25	169,00	27.750.4530	MF45	3	85	36	447,00						
27.750.3815	MF38	1.5	70	20	225,00	27.750.4615	MF46	1.5	85	22	488,00						

> 27.900 INTERNATIONAL TOOLS

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



Ref.	d1	TPI	sw	b1	€	Ref.	d1	TPI	sw	b1	€
27.900.0973	G 1/8	28	27	11	28,00	27.900.3790	G 1.1/8	11	70	20	203,95
27.900.1316	G 1/4	19	36	10	42,00	27.900.4191	G 1.1/4	11	70	20	199,00
27.900.1666	G 3/8	19	41	14	56,00	27.900.4432	G 1.3/8	11	85	22	312,00
27.900.2096	G 1/2	14	41	14	56,00	27.900.4780	G 1.1/2	11	85	22	312,00
27.900.2291	G 5/8	14	50	16	94,30	27.900.5375	G 1.3/4	11	85	22	506,00
27.900.2644	G 3/4	14	50	16	92,00	27.900.5961	G 2	11	100	22	498,00
27.900.3020	G 7/8	14	60	18	145,55	27.900.7518	G 2.1/2	11	120	22	610,00
27.900.3325	G 1	11	60	18	142,00	27.900.8788	G 3	11	130	22	1.014,00

> 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



Phan-Coil	EG	M
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Ref.	d1	P	Max. x d1	1	2	3	4	5	€
28.870.0040	M4	0.7	2	11.450.0420	21.812.0400	28.860.0025	28.865.0025	1,5xD (5), 2xD (5)	52,75
28.870.0050	M5	0.8	2	11.450.0525	21.812.0500	28.860.0035	28.865.0035	1,5xD (5), 2xD (5)	53,50
28.870.0060	M6	1	2	11.450.0630	21.812.0600	28.860.0040	28.865.0040	1,5xD (5), 2xD (5)	55,10
28.870.0080	M8	1.25	2	11.450.0840	21.812.0800	28.860.0055	28.865.0055	1,5xD (5), 2xD (5)	62,80
28.870.0100	M10	1.5	2	11.450.1050	21.812.1000	28.860.0070	28.865.0070	1,5xD (5), 2xD (5)	68,35
28.870.0120	M12	1.75	2	11.450.1250	21.812.1200	28.860.0080	28.865.0080	1,5xD (3), 2xD (3)	81,40
28.870.0160	M16	2	2	11.450.1650	21.812.1600	28.860.0095	28.865.0095	1,5xD (2), 2xD (2)	111,00



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?

Read me



www.phantom.eu

> 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)



Phan-Coil EG M

Ref.	Contents	1	2	3	4	5	€
28.880.1000	M5, M6, M8, M10, M12	11.450.0525, 11.450.0630, 11.450.0840, 11.450.1050, 11.450.1250	21.812.0500, 21.812.0600, 21.812.0800, 21.812.1000, 21.812.1200	28.860.0035, 28.860.0040, 28.860.0055, 28.860.0070, 28.860.0080	28.865.0035, 28.865.0040, 28.865.0055, 28.865.0070, 28.865.0080	M5 1,5xD(4) 2xD(4), M6 1,5xD(4) 2xD(4), M8 1,5xD(4) 2xD(4), M10 1,5xD(3) 2xD(3), M12 1,5xD(3) 2xD(3)	278,00

> 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 im Kunststoffkoffer
 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	Nr. 1 + 2	Nr. 1 + 2	20x5-20x7-25x9-30x11-38x14	2,7-3,4-4,9-5,5-7	388,00
29.100.2000	M3-M12	M3-4-5-6-8-10-12	(Ø25 mm) M3-4-5-6-8-10-12	2,5-3,3-4,2-5-6,8-8,5-10,2	Nr. 1,5	Nr. 1	25x9	-	262,00

> 29.110 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 im Kunststoffkoffer
 EN ECO PRO HSS Set Threading Tools in plastic case



HSS ECO PRO

NIEUW NOUVEAU NUEVO NEU

Ref.	Ø	1	2	3	4	5	6	€
29.110.0314	M3-M14	M3-4-5-6-8-10-12-14	M3-4-5-6-8-10-12-14	-	Nr. 1 + 2	-	20x5-20x7-25x9-30x11-38x14	405,00
29.110.0530	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	1922,00
29.110.1312	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	Nr. 1 + 2	20x5-20x7-25x9-30x11-38x14	410,00
29.110.1324	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	1204,00
29.110.3225	G (BSP) 1/8-1"	G (BSP) 1/8-1/4-3/8-1/2-3/4-1"	G (BSP) 1/8-1/4-3/8-1/2-3/4-1"	-	Nr. 3 + 5	-	30x11-38x10-45x14-55x16-65x18	892,00
29.110.8312	M3-M12	M3-4-5-6-8-10-12	(Ø25 mm) M3-4-5-6-8-10-12	2,5-3,3-4,2-5-6,8-8,5-10,2	Nr. 1,5	Nr. 1	25x9	415,00



> 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. 1 + 2	20x5-20x7-25x9-30x11-38x14	542,00
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	1.596,00
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	2.663,00
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	1.882,00
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	1.483,00
29.120.0006	G (BSP) 1/8-1"	G (BSP) 1/8-1/4-3/8-1/2-3/4-1"	G (BSP) 1/8-1/4-3/8-1/2-3/4-1"	Nr. 3 + 5	30x11-38x10-45x14-55x16-65x18	1.436,00
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	1.032,00
29.120.0009	NPT1/8-1"	NPT 1/8-1/4-3/8-1/2-3/4-1"	NPT 1/8-1/4-3/8-1/2-3/4-1"	Nr. 1 + 3 + 5	30x11-38x14-45x18-55x22-65x25	2.303,00
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	997,00
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	1.483,00

> 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 Kasette aus Stahl
 EN ECO PRO HSS Set Threading Tools in metal case



HSS M ISO 2 6H ECO PRO

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

> 29.170 INTERNATIONAL TOOLS

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



HSS M DIN 352 ISO 2 6H ECO

NIEUW NOUVEAU NUEVO NEU

Ref.	1	2	3	€
29.170.0312	21.140 (M3-4-5-6-8-10-12)	Nr. 1,5	Nr. 1	207,00

> 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)



HSS

M

DIN 352

ISO 2 6H

ECO

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)	178,00

> 29.185 INTERNATIONAL TOOLS

- NL ECO HSS Set Draadsnijden 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 1/4" (6,35 mm) Hexa-Bitaufnahme, (Kombination)
EN ECO HSS Set Threading Tools 1/4" (6,35 mm) hexagonal shank, (combination)



HSS

M

DIN 3126

C6,3 1/4"

ISO 2 6H

ECO

Ref.	1	2	3	€
29.185.1310	22.100 (M3-4-5-6-8-10)	11.120 (2,5-3,3-4,2-5-6,8-8,5)	81.990.0635	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)



HSS

M

ISO 2 6H

ECO

Ref.	1	2	3	4	A, B, C	€
29.190.1000	22.191/22.192 (M3-4-5-6-8-10-12)	-	-	-	B	78,00
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	91,00
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	82,00
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	59,00
29.190.6000	23.291/23.292 (M3-4-5-6-8-10-12)	-	-	-	B	83,00

> 29.195 INTERNATIONAL TOOLS

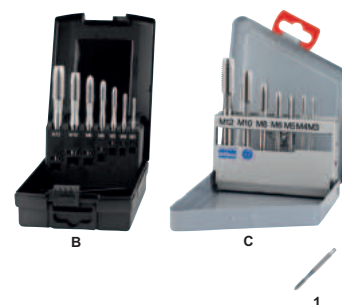
NL ECO PRO Set machinetappen (combinatie)
FR Jeu de tarauds machine ECO PRO (combinaison)
ES Juego de machos máquina ECO PRO (combinación)
DE ECO PRO Satz Maschinengewindebohren (Kombination)
EN ECO PRO machine tap Set (combination)



Ref.	1	2	3	4	A, B, C	€
29.195.1000	22.195/22.196 (M3-4-5-6-8-10-12)	-	-	-	B	117,00
29.195.1250	22.197/22.198 (M3-4-5-6-8-10-12)	-	-	-	B	172,00
29.195.1500	22.595/22.596 (M3-4-5-6-8-10-12)	-	-	-	B	144,00
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	128,00
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	160,00
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	149,00
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	111,00
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	172,00
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	202,00
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	203,00
29.195.6000	23.295/23.296 (M3-4-5-6-8-10-12)	-	-	-	B	126,00

> 29.250 Phantom

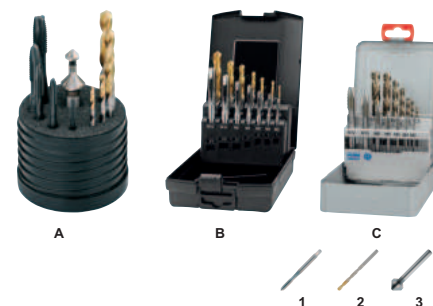
NL Set machinetappen
FR Jeu de tarauds machine
ES Juego de machos máquina
DE Satz Maschinengewindebohren
EN Machine tap Set



Ref.	1	B, C	€
29.250.2000	22.200/22.201 (M3-4-5-6-8-10-12)	B	247,00
29.250.2100	22.201 (M3-4-5-6-8-10-12)	C	217,00
29.250.2105	22.201 (M3-4-5-6-8-10-12)	B	224,00
29.250.2120	22.230/22.231 (M3-4-5-6-8-10-12)	B	159,00
29.250.2150	22.205 (M3-4-5-6-8-10-12)	C	151,00
29.250.2155	22.205 (M3-4-5-6-8-10-12)	B	338,00
29.250.2500	22.268/22.269 (M3-4-5-6-8-10-12)	B	227,00
29.250.2600	22.600/22.601 (M3-4-5-6-8-10-12)	B	197,00
29.250.3300	23.300/23.301 (M3-4-5-6-8-10-12)	B	235,00
29.250.3450	23.450/23.451 (M3-4-5-6-8-10-12)	B	238,50

> 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)



Ref.	1	2	3	A, B, C	€
29.260.1941	22.200/22.201 (M3-4-5-6-8-10-12)	11.441 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	226,00
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	216,00
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	215,00
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	223,00
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	235,00
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	281,00
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	266,00
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
29.260.2205	22.220/22.221 (M3-4-5-6-8-10-12)	11.461 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	225,00
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
29.260.2245	22.220 (M4-5-6-8-10)	11.461 (3,3-4,2-5-6,8-8,5)	42.547 (10,4 16,5)	A	192,00
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	430,00
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	286,00

> 29.260 Phantom

Ref.	1	2	3	A, B, C	€
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	232,00
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	239,00
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	239,00
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	250,00
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	294,00

> 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.


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

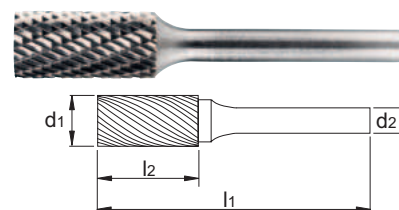
> 41.410 INTERNATIONAL TOOLS

NL ECO PRO hardmetaal Stiftfrees model A, cilindrisch
FR Fraise lime Carbure ECO PRO Forme A, forme cylindrique
ES Fresa rotativa carburo ECO PRO forma A, cilíndrico
DE ECO PRO Hartmetall Frässtift Form A, Zylinderform
EN ECO PRO carbide Burr model A, cylindrical



Ref.	Ø	d1	l1	l2	d2	z	€
41.410.0336	3	3	38	14	3	6-UNI	8,04
41.410.0606	6	6	50	18	6	6-UNI	12,58
41.410.0806	8	8	65	20	6	6-UNI	16,88

Ref.	Ø	d1	l1	l2	d2	z	€
41.410.1006	10	10	65	20	6	6-UNI	18,21
41.410.1206	12	12	70	25	6	6-UNI	28,65
41.410.1606	16	16	70	25	6	6-UNI	36,05



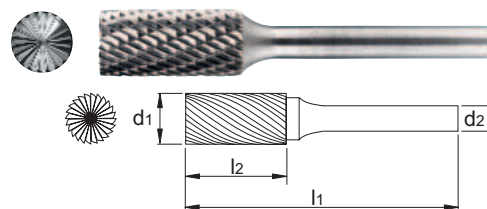
> 41.420 INTERNATIONAL TOOLS

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



Ref.	Ø	d1	l1	l2	d2	z	€
41.420.0336	3	3	38	14	3	6-UNI	8,84
41.420.0606	6	6	50	18	6	6-UNI	13,54
41.420.0806	8	8	65	20	6	6-UNI	18,63

Ref.	Ø	d1	l1	l2	d2	z	€
41.420.1006	10	10	65	20	6	6-UNI	19,96
41.420.1206	12	12	70	25	6	6-UNI	31,70
41.420.1606	16	16	70	25	6	6-UNI	39,55



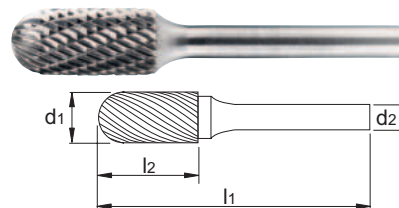
> 41.430 INTERNATIONAL TOOLS

NL ECO PRO hardmetaal Stiftfrees model C, cilindrisch, ronde kop
FR Fraise lime Carbure ECO PRO Forme C, Forme cylindrique à bout arrondi
ES Fresa rotativa carburo ECO PRO forma C, cilíndrico, forma semiesférica
DE ECO PRO Hartmetall Frässtift Form C, Walzenrundform
EN ECO PRO carbide Burr model C, Cylindrical, ball nose



Ref.	Ø	d1	l1	l2	d2	z	€
41.430.0336	3	3	38	14	3	6-UNI	8,04
41.430.0606	6	6	50	18	6	6-UNI	14,34
41.430.0806	8	8	65	20	6	6-UNI	20,66

Ref.	Ø	d1	l1	l2	d2	z	€
41.430.1006	10	10	65	20	6	6-UNI	20,89
41.430.1206	12	12	70	25	6	6-UNI	30,80
41.430.1606	16	16	70	25	6	6-UNI	39,35



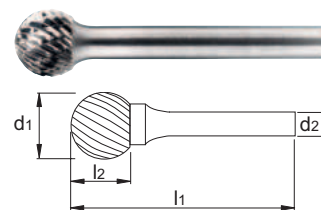
> 41.440 INTERNATIONAL TOOLS

NL ECO PRO hardmetaal Stiftfrees model D, kogelvorm
FR Fraise lime Carbure ECO PRO Forme D, Forme sphérique
ES Fresa rotativa carburo ECO PRO forma D, modelo esférico
DE ECO PRO Hartmetall Frässtift Form D, Kugelform
EN ECO PRO carbide Burr model D, ball



Ref.	Ø	d1	l1	l2	d2	z	€
41.440.0336	3	3	38	2,5	3	6-UNI	8,04
41.440.0606	6	6	50	5	6	6-UNI	13,93
41.440.0806	8	8	52	7	6	6-UNI	15,00

Ref.	Ø	d1	l1	l2	d2	z	€
41.440.1006	10	10	54	9	6	6-UNI	17,02
41.440.1206	12	12	56	11	6	6-UNI	21,69
41.440.1606	16	16	59	14	6	6-UNI	30,15

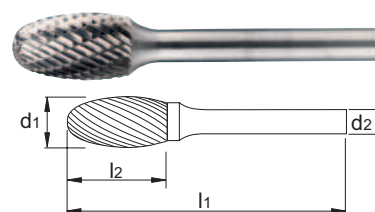


> 41.450 INTERNATIONAL TOOLS

NL ECO PRO hardmetaal Stiftfrees model E, druppelvorm
FR Fraise lime Carbure ECO PRO Forme E, Forme goutte
ES Fresa rotativa carburo ECO PRO forma E, forma oval
DE ECO PRO Hartmetall Frässtift Form E, Tropfenform
EN ECO PRO carbide Burr model E, Oval



Ref.	Ø	d1	l1	l2	d2	z	€
41.450.0336	3	3	38	6	3	6-UNI	8,04
41.450.0606	6	6	50	10	6	6-UNI	15,96
41.450.0806	8	8	60	15	6	6-UNI	19,78



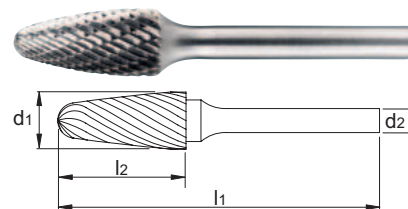
Ref.	Ø	d1	l1	l2	d2	z	€
41.450.1006	10	10	60	15	6	6-UNI	21,16
41.450.1206	12	12	65	20	6	6-UNI	31,10
41.450.1606	16	16	70	25	6	6-UNI	44,90

> 41.460 INTERNATIONAL TOOLS

NL ECO PRO hardmetaal Stiftfrees model F, boomvorm met ronde kop
FR Fraise lime Carbure ECO PRO Forme F, Forme ogive à bout arrondi
ES Fresa rotativa carburo ECO PRO forma F, forma ojival en semiesférica
DE ECO PRO Hartmetall Frässtift Form F, Rundbogenform
EN ECO PRO carbide Burr model F, Ball nose tree



Ref.	Ø	d1	l1	l2	d2	z	€
41.460.0336	3	3	38	14	3	6-UNI	8,04
41.460.0606	6	6	50	18	6	6-UNI	15,96
41.460.0806	8	8	65	20	6	6-UNI	19,78



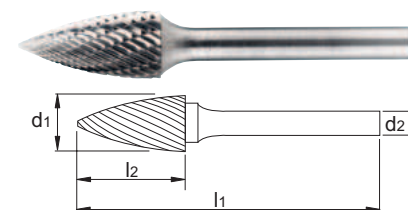
Ref.	Ø	d1	l1	l2	d2	z	€
41.460.1006	10	10	65	20	6	6-UNI	21,31
41.460.1206	12	12	70	25	6	6-UNI	31,10
41.460.1606	16	16	70	25	6	6-UNI	44,90

> 41.470 INTERNATIONAL TOOLS

NL ECO PRO hardmetaal Stiftfrees model G, boomvorm spits
FR Fraise lime Carbure ECO PRO Forme G, Forme ogive
ES Fresa rotativa carburo ECO PRO forma G, forma ojival en punta
DE ECO PRO Hartmetall Frässtift Form G, Spitzbogenform
EN ECO PRO carbide Burr model G, pointed tree



Ref.	Ø	d1	l1	l2	d2	z	€
41.470.0336	3	3	38	14	3	6-UNI	8,04
41.470.0606	6	6	50	18	6	6-UNI	15,96
41.470.0806	8	8	65	20	6	6-UNI	20,55



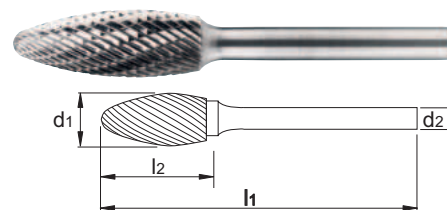
Ref.	Ø	d1	l1	l2	d2	z	€
41.470.1006	10	10	65	20	6	6-UNI	19,83
41.470.1206	12	12	70	25	6	6-UNI	31,10
41.470.1606	16	16	70	25	6	6-UNI	44,70

> 41.480 INTERNATIONAL TOOLS

NL ECO PRO hardmetaal Stiftfrees model H, vlamvorm
FR Fraise lime Carbure ECO PRO Forme H, Forme flamme
ES Fresa rotativa carburo ECO PRO forma H, forma llama
DE ECO PRO Hartmetall Frässtift Form H, Flammenform
EN ECO PRO carbide Burr model H, flame



Ref.	Ø	d1	l1	l2	d2	z	€
41.480.0336	3	3	38	6	3	6-UNI	8,04
41.480.0606	6	6	50	14	6	6-UNI	17,41
41.480.0806	8	8	65	20	6	6-UNI	20,89

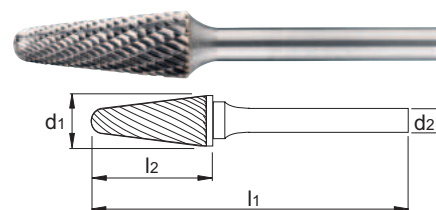


Ref.	Ø	d1	l1	l2	d2	z	€
41.480.1006	10	10	65	20	6	6-UNI	39,70
41.480.1206	12	12	75	30	6	6-UNI	39,20
41.480.1606	16	16	80	35	6	6-UNI	62,40



> 41.486 INTERNATIONAL TOOLS

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

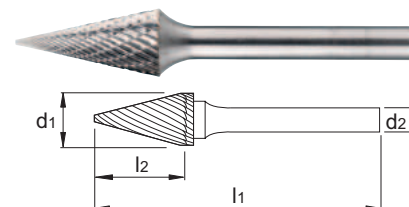


Ref.	Ø	d1	l1	l2	d2	z	€
41.486.0336	3	3	38	14	3	6-UNI	8,04
41.486.0606	6	6	50	18	6	6-UNI	15,96
41.486.0806	8	8	70	25	6	6-UNI	22,65

Ref.	Ø	d1	l1	l2	d2	z	€
41.486.1006	10	10	65	20	6	6-UNI	24,11
41.486.1206	12	12	75	30	6	6-UNI	32,85
41.486.1606	16	16	78	33	6	6-UNI	59,75

> 41.488 INTERNATIONAL TOOLS

- NL ECO PRO hardmetaal Stiftfrees model M, kegelvorm, spits
 FR Fraise lime Carbure ECO PRO Forme M, Forme conique à bout pointu
 ES Fresa rotativa carburo ECO PRO forma M, forma cónica, en punta
 DE ECO PRO Hartmetall Frässtift Form M, Spitzkegelform
 EN ECO PRO carbide Burr model M, cone

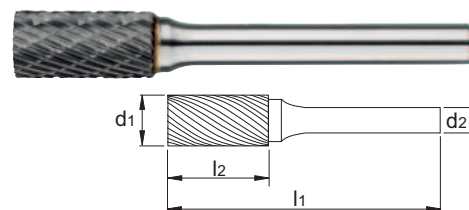


Ref.	Ø	d1	l1	l2	d2	z	€
41.488.0336	3	3	38	11	3	6-UNI	8,04
41.488.0606	6	6	50	20	6	6-UNI	16,07
41.488.0806	8	8	65	20	6	6-UNI	22,65

Ref.	Ø	d1	l1	l2	d2	z	€
41.488.1006	10	10	65	20	6	6-UNI	23,45
41.488.1206	12	12	71	26	6	6-UNI	30,00
41.488.1606	16	16	70	25	6	6-UNI	41,65

> 41.510 Phantom

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



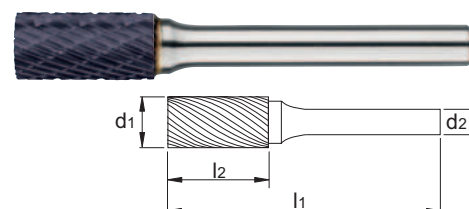
HM A Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.510.0601	6	6	50	18	6	1-ALU	26,85
41.510.0603	6	6	50	18	6	3-FINE	20,83
41.510.0604	6	6	50	18	6	4-DIAMOND	22,11
41.510.0606	6	6	50	18	6	6-UNI	21,04
41.510.0608	6	6	50	18	6	8-STEEL	23,20
41.510.0609	6	6	50	18	6	9-INOX	25,40
41.510.0801	8	8	64	19	6	1-ALU	34,05
41.510.0803	8	8	64	19	6	3-FINE	28,00
41.510.0804	8	8	64	19	6	4-DIAMOND	29,75
41.510.0806	8	8	64	19	6	6-UNI	28,25
41.510.0808	8	8	64	19	6	8-STEEL	31,20
41.510.0809	8	8	64	19	6	9-INOX	34,05
41.510.1001	10	9.5	64	19	6	1-ALU	36,90
41.510.1003	10	9.5	64	19	6	3-FINE	30,15

Ref.	Ø	d1	l1	l2	d2	z	€
41.510.1004	10	9.5	64	19	6	4-DIAMOND	31,90
41.510.1006	10	9.5	64	19	6	6-UNI	30,40
41.510.1008	10	9.5	64	19	6	8-STEEL	33,40
41.510.1009	10	9.5	64	19	6	9-INOX	36,25
41.510.1201	12	12.7	70	25	6	1-ALU	57,25
41.510.1203	12	12.7	70	25	6	3-FINE	47,35
41.510.1204	12	12.7	70	25	6	4-DIAMOND	49,95
41.510.1206	12	12.7	70	25	6	6-UNI	47,80
41.510.1208	12	12.7	70	25	6	8-STEEL	52,25
41.510.1209	12	12.7	70	25	6	9-INOX	57,25
41.510.1601	16	16	70	25	6	1-ALU	72,00
41.510.1604	16	16	70	25	6	4-DIAMOND	63,10
41.510.1606	16	16	70	25	6	6-UNI	60,15
41.510.2006	20	19	70	25	6	6-UNI	90,65

> 41.511 Phantom

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



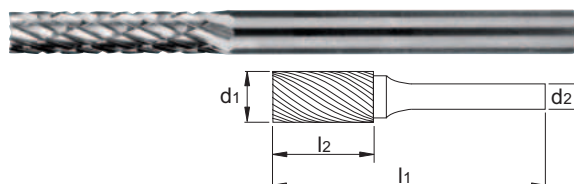
HM TiAlN A Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.511.0606	6	6	50	18	6	6-UNI	26,80
41.511.0806	8	8	64	19	6	6-UNI	34,05

Ref.	Ø	d1	l1	l2	d2	z	€
41.511.1006	10	9.5	64	19	6	6-UNI	39,10
41.511.1206	12	12.7	70	25	6	6-UNI	60,15

> 41.513 Phantom

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



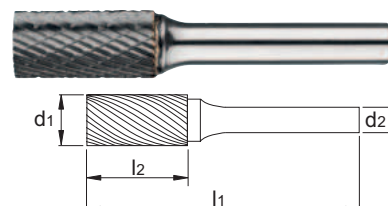
HM A Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.513.0153	1.5	1.5	38	6	3	3-FINE	10,51
41.513.0154	1.5	1.5	38	6	3	4-DIAMOND	11,59
41.513.0206	2	2	38	11	3	6-UNI	11,08
41.513.0301	3	3	38	14	3	1-ALU	15,22
41.513.0303	3	3	38	14	3	3-FINE	10,51

Ref.	Ø	d1	l1	l2	d2	z	€
41.513.0304	3	3	38	14	3	4-DIAMOND	11,59
41.513.0306	3	3	38	14	3	6-UNI	11,17
41.513.0309	3	3	38	14	3	9-INOX	15,22
41.513.0636	6	6.3	45	12.7	3	6-UNI	19,57
41.513.0639	6	6.3	45	12.7	3	9-INOX	28,65

> 41.518 Phantom

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



HM A Ø8

Ref.	Ø	d1	l1	l2	d2	z	€
41.518.1286	12	12.7	70	25	8	6-UNI	47,80
41.518.1681	16	16	70	25	8	1-ALU	72,00

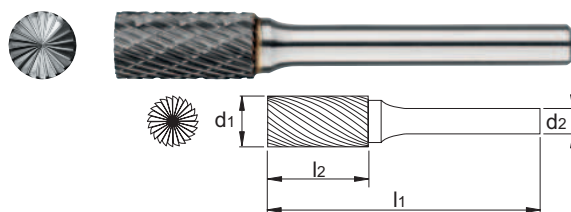
Ref.	Ø	d1	l1	l2	d2	z	€
41.518.1686	16	16	70	25	8	6-UNI	60,15
41.518.2086	20	19	70	25	8	6-UNI	90,65

> 41.520 Phantom

- NL hardmetaal 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 carburo forma B, cilíndrico con corte al centro, mango 6 mm
 DE Hartmetall Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 6 mm
 EN carbide Burr model B, cylindrical with End Cut, shank 6 mm



Ref.	Ø	d1	l1	l2	d2	z	€
41.520.0601	6	6	50	18	6	1-ALU	28,95
41.520.0603	6	6	50	18	6	3-FINE	22,40
41.520.0604	6	6	50	18	6	4-DIAMOND	23,92
41.520.0606	6	6	50	18	6	6-UNI	22,61
41.520.0608	6	6	50	18	6	8-STEEL	25,40
41.520.0801	8	8	64	19	6	1-ALU	37,40
41.520.0803	8	8	64	19	6	3-FINE	30,85
41.520.0804	8	8	64	19	6	4-DIAMOND	32,60
41.520.0806	8	8	64	19	6	6-UNI	31,20
41.520.0808	8	8	64	19	6	8-STEEL	34,05
41.520.1001	10	9.5	64	19	6	1-ALU	39,85
41.520.1003	10	9.5	64	19	6	3-FINE	32,95



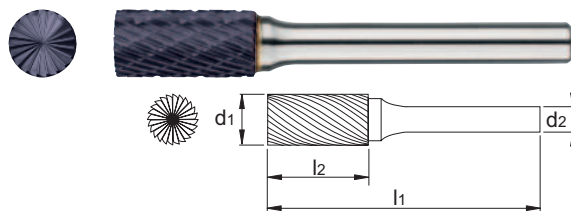
Ref.	Ø	d1	l1	l2	d2	z	€
41.520.1004	10	9.5	64	19	6	4-DIAMOND	34,80
41.520.1006	10	9.5	64	19	6	6-UNI	33,40
41.520.1008	10	9.5	64	19	6	8-STEEL	39,45
41.520.1201	12	12.7	70	25	6	1-ALU	63,10
41.520.1203	12	12.7	70	25	6	3-FINE	52,95
41.520.1204	12	12.7	70	25	6	4-DIAMOND	55,85
41.520.1206	12	12.7	70	25	6	6-UNI	52,95
41.520.1208	12	12.7	70	25	6	8-STEEL	58,00
41.520.1603	16	16	70	25	6	3-FINE	65,90
41.520.1604	16	16	70	25	6	4-DIAMOND	69,55
41.520.1606	16	16	70	25	6	6-UNI	65,90
41.520.2006	20	19	70	25	6	6-UNI	94,20

> 41.521 Phantom

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



Ref.	Ø	d1	l1	l2	d2	z	€
41.521.0606	6	6	50	18	6	6-UNI	28,40
41.521.0806	8	8	64	19	6	6-UNI	36,90



Ref.	Ø	d1	l1	l2	d2	z	€
41.521.1006	10	9.5	64	19	6	6-UNI	42,05
41.521.1206	12	12.7	70	25	6	6-UNI	65,25

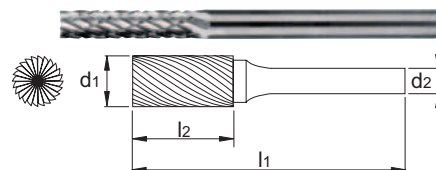
> 41.523 Phantom

- NL hardmetaal 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 carburo forma B, cilíndrico con corte al centro, mango 3 mm
 DE Hartmetall Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 3 mm
 EN carbide Burr model B, cylindrical with End Cut, shank 3 mm



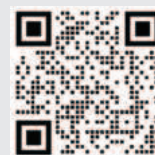
Ref.	Ø	d1	l1	l2	d2	z	€
41.523.0153	1.5	1.5	38	6	3	3-FINE	10,51
41.523.0206	2	2	38	11	3	6-UNI	11,08
41.523.0301	3	3	38	14	3	1-ALU	15,22
41.523.0303	3	3	38	14	3	3-FINE	10,51

Ref.	Ø	d1	l1	l2	d2	z	€
41.523.0304	3	3	38	14	3	4-DIAMOND	11,59
41.523.0306	3	3	38	14	3	6-UNI	11,17
41.523.0506	5	5	38	12.7	3	6-UNI	31,30
41.523.0636	6	6.3	38	12.7	3	6-UNI	23,20



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 burs

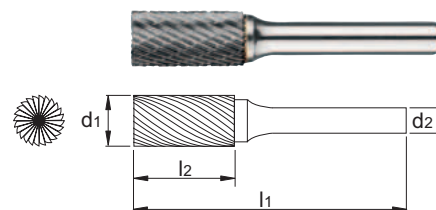
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> 41.528 Phantom

- NL hardmetaal 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 carburo forma B, cilíndrico con corte al centro, mango 8 mm
- DE Hartmetall Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 8 mm
- EN carbide Burr model B, cylindrical with End Cut, shank 8 mm

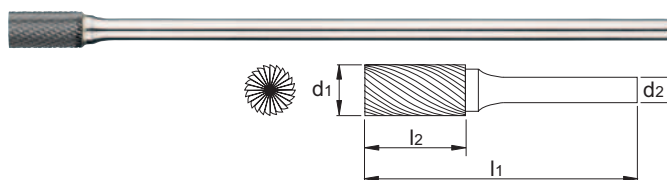


Ref.	Ø	d1	l1	l2	d2	z	€
41.528.1286	12	12.7	70	25	8	6-UNI	52,95
41.528.1686	16	16	70	25	8	6-UNI	65,90

Ref.	Ø	d1	l1	l2	d2	z	€
41.528.2086	20	19	70	25	8	6-UNI	94,20

> 41.529 Phantom

- NL hardmetaal 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 carburo forma B, cilíndrico con corte al centro, mango 6 mm, larga
- DE Hartmetall Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 6 mm, lang
- EN carbide Burr model B, cylindrical with End Cut, shank 6 mm, long

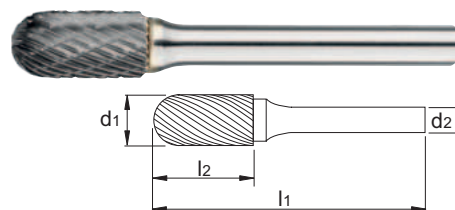


Ref.	Ø	d1	l1	l2	d2	z	€
41.529.0614	6	6	162	12.7	6	4-DIAMOND	39,85
41.529.1014	10	9.5	170	19	6	4-DIAMOND	51,40

Ref.	Ø	d1	l1	l2	d2	z	€
41.529.1214	12	12.7	175	25	6	4-DIAMOND	71,80

> 41.530 Phantom

- NL hardmetaal 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 carburo forma C, cilíndrico, forma semiesférica, mango 6 mm
- DE Hartmetall Frässtift Form C, Walzenrundform, Schaft 6 mm
- EN carbide Burr model C, Cylindrical, ball nose, shank 6 mm



Ref.	Ø	d1	l1	l2	d2	z	€
41.530.0306	3	3	60	15	6	6-UNI	31,20
41.530.0406	4	4	60	15	6	6-UNI	31,20
41.530.0601	6	6	50	18	6	1-ALU	31,20
41.530.0603	6	6	50	18	6	3-FINE	23,68
41.530.0604	6	6	50	18	6	4-DIAMOND	25,40
41.530.0606	6	6	50	18	6	6-UNI	23,92
41.530.0608	6	6	50	18	6	8-STEEL	26,10
41.530.0609	6	6	50	18	6	9-INOX	28,25
41.530.0616	6	6	60	18	6	6-UNI	32,20
41.530.0636	6	6	100	18	6	6-UNI	69,60
41.530.0801	8	8	64	19	6	1-ALU	41,30
41.530.0803	8	8	64	19	6	3-FINE	33,75
41.530.0804	8	8	64	19	6	4-DIAMOND	36,90
41.530.0806	8	8	64	19	6	6-UNI	36,25
41.530.0808	8	8	64	19	6	8-STEEL	39,85
41.530.0809	8	8	64	19	6	9-INOX	42,75
41.530.1001	10	9.5	64	19	6	1-ALU	41,40

Ref.	Ø	d1	l1	l2	d2	z	€
41.530.1003	10	9.5	64	19	6	3-FINE	34,40
41.530.1004	10	9.5	64	19	6	4-DIAMOND	36,90
41.530.1006	10	9.5	64	19	6	6-UNI	34,80
41.530.1008	10	9.5	64	19	6	8-STEEL	38,45
41.530.1009	10	9.5	64	19	6	9-INOX	41,40
41.530.1201	12	12.7	70	25	6	1-ALU	63,80
41.530.1203	12	12.7	70	25	6	3-FINE	50,25
41.530.1204	12	12.7	70	25	6	4-DIAMOND	54,40
41.530.1206	12	12.7	70	25	6	6-UNI	51,40
41.530.1208	12	12.7	70	25	6	8-STEEL	56,55
41.530.1209	12	12.7	70	25	6	9-INOX	61,55
41.530.1601	16	16	70	25	6	1-ALU	81,25
41.530.1603	16	16	70	25	6	3-FINE	63,90
41.530.1604	16	16	70	25	6	4-DIAMOND	68,40
41.530.1606	16	16	70	25	6	6-UNI	65,55
41.530.2006	20	19	70	25	6	6-UNI	99,30

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

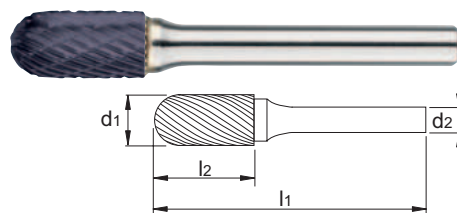
> 41.531 Phantom

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

HM TiAlN C Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.531.0606	6	6	50	18	6	6-UNI	30,40
41.531.0806	8	8	64	19	6	6-UNI	45,60

Ref.	Ø	d1	l1	l2	d2	z	€
41.531.1006	10	9.5	64	19	6	6-UNI	45,00
41.531.1206	12	12.7	70	25	6	6-UNI	65,10

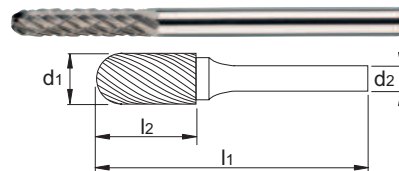
**> 41.533 Phantom**

- NL hardmetaal 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 carburo forma C, cilíndrico, forma semiesférica, mango 3 mm
 DE Hartmetall Frässtift Form C, Walzenrundform, Schaft 3 mm
 EN carbide Burr model C, Cylindrical, ball nose, shank 3 mm

HM C Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.533.0203	2	2	38	11	3	3-FINE	10,51
41.533.0206	2	2	38	11	3	6-UNI	11,08
41.533.0301	3	3	38	14	3	1-ALU	15,22
41.533.0303	3	3	38	14	3	3-FINE	10,51
41.533.0304	3	3	38	14	3	4-DIAMOND	11,59
41.533.0306	3	3	38	14	3	6-UNI	11,17

Ref.	Ø	d1	l1	l2	d2	z	€
41.533.0309	3	3	38	14	3	9-INOX	15,22
41.533.0633	6	6.3	45	12.7	3	3-FINE	19,57
41.533.0634	6	6.3	45	12.7	3	4-DIAMOND	21,74
41.533.0636	6	6.3	45	12.7	3	6-UNI	19,57
41.533.0639	6	6.3	45	12.7	3	9-INOX	28,25

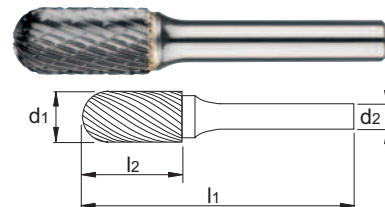
**> 41.538 Phantom**

- NL hardmetaal 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 carburo forma C, cilíndrico, forma semiesférica, mango 8 mm
 DE Hartmetall Frässtift Form C, Walzenrundform, Schaft 8 mm
 EN carbide Burr model C, Cylindrical, ball nose, shank 8 mm

HM C Ø8

Ref.	Ø	d1	l1	l2	d2	z	€
41.538.1286	12	12.7	70	25	8	6-UNI	51,40
41.538.1686	16	16	70	25	8	6-UNI	65,55

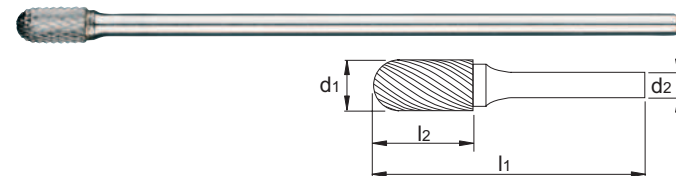
Ref.	Ø	d1	l1	l2	d2	z	€
41.538.2086	20	19	70	25	8	6-UNI	99,30

**> 41.539 Phantom**

- NL hardmetaal 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 carburo forma C, cilíndrico, forma semiesférica, mango 6 mm, larga
 DE Hartmetall Frässtift Form C, Walzenrundform, Schaft 6 mm, lang
 EN carbide Burr model C, Cylindrical, ball nose, shank 6 mm, long

HM C Ø6

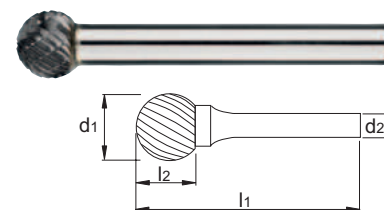
Ref.	Ø	d1	l1	l2	d2	z	€
41.539.0614	6	6	162	12.7	6	4-DIAMOND	41,40
41.539.1014	10	9.5	170	19	6	4-DIAMOND	49,65



Ref.	Ø	d1	l1	l2	d2	z	€
41.539.1214	12	12.7	175	25	6	4-DIAMOND	68,70

> 41.540 Phantom

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



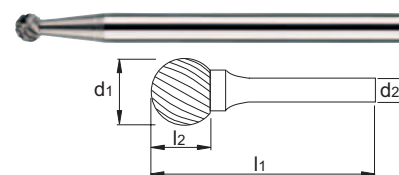
HM D Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.540.0601	6	6	50	5	6	1-ALU	30,40
41.540.0603	6	6	50	5	6	3-FINE	22,69
41.540.0604	6	6	50	5	6	4-DIAMOND	24,34
41.540.0606	6	6	50	5	6	6-UNI	23,20
41.540.0608	6	6	50	5	6	8-STEEL	25,40
41.540.0609	6	6	50	5	6	9-INOX	27,55
41.540.0801	8	8	50	6.4	6	1-ALU	32,00
41.540.0803	8	8	50	6.4	6	3-FINE	24,40
41.540.0804	8	8	50	6.4	6	4-DIAMOND	26,45
41.540.0806	8	8	50	6.4	6	6-UNI	24,93
41.540.0808	8	8	50	6.4	6	8-STEEL	27,55
41.540.0809	8	8	50	6.4	6	9-INOX	30,40
41.540.1001	10	9.5	52	8	6	1-ALU	35,50
41.540.1003	10	9.5	52	8	6	3-FINE	27,25

Ref.	Ø	d1	l1	l2	d2	z	€
41.540.1004	10	9.5	52	8	6	4-DIAMOND	29,40
41.540.1006	10	9.5	52	8	6	6-UNI	28,25
41.540.1008	10	9.5	52	8	6	8-STEEL	31,20
41.540.1009	10	9.5	52	8	6	9-INOX	34,05
41.540.1201	12	12.7	55	11	6	1-ALU	46,35
41.540.1203	12	12.7	55	11	6	3-FINE	35,50
41.540.1204	12	12.7	55	11	6	4-DIAMOND	38,05
41.540.1206	12	12.7	55	11	6	6-UNI	36,25
41.540.1208	12	12.7	55	11	6	8-STEEL	39,85
41.540.1209	12	12.7	55	11	6	9-INOX	43,45
41.540.1601	16	16	58	14	6	1-ALU	59,50
41.540.1606	16	16	58	14	6	6-UNI	50,25
41.540.2006	20	19	62	16	6	6-UNI	68,90

> 41.543 Phantom

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



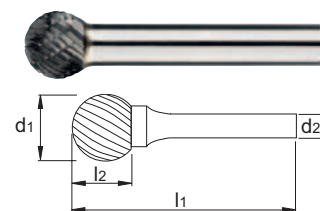
HM D Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.543.0203	2	2	38	1.8	3	3-FINE	10,51
41.543.0206	2	2	38	1.8	3	6-UNI	11,08
41.543.0301	3	3	38	2.5	3	1-ALU	15,22
41.543.0303	3	3	38	2.5	3	3-FINE	10,51
41.543.0304	3	3	38	2.5	3	4-DIAMOND	11,59
41.543.0306	3	3	38	2.5	3	6-UNI	11,17
41.543.0309	3	3	38	2.5	3	9-INOX	15,22

Ref.	Ø	d1	l1	l2	d2	z	€
41.543.0403	4	4	38	3.4	3	3-FINE	31,20
41.543.0406	4	4	38	3.4	3	6-UNI	33,40
41.543.0631	6	6.3	38	5	3	1-ALU	26,80
41.543.0633	6	6.3	38	5	3	3-FINE	21,74
41.543.0636	6	6.3	38	5	3	6-UNI	19,57
41.543.0639	6	6.3	38	5	3	9-INOX	28,95

> 41.548 Phantom

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



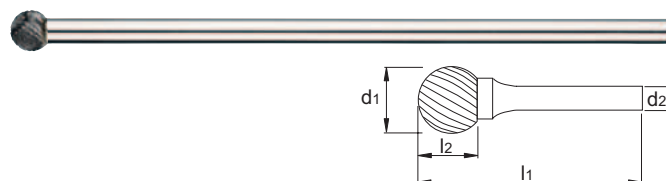
HM D Ø8

Ref.	Ø	d1	l1	l2	d2	z	€
41.548.1286	12	12.7	56	11	8	6-UNI	36,25
41.548.1686	16	16	59	14	8	6-UNI	49,95

Ref.	Ø	d1	l1	l2	d2	z	€
41.548.2086	20	19	62	16.5	8	6-UNI	67,40

> 41.549 Phantom

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



HM D Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.549.1014	10	9.5	158	8	6	4-DIAMOND	45,00

Ref.	Ø	d1	l1	l2	d2	z	€
41.549.1214	12	12.7	161	11	6	4-DIAMOND	54,65

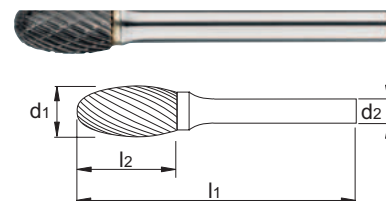
41.550 Phantom

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

HM E Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.550.0601	6	6	50	9.5	6	1-ALU	37,35
41.550.0606	6	6	50	9.5	6	6-UNI	28,95
41.550.0806	8	8	60	15	6	6-UNI	35,50
41.550.0809	8	8	60	15	6	9-INOX	38,45
41.550.1001	10	9.5	60	16	6	1-ALU	45,90
41.550.1004	10	9.5	60	16	6	4-DIAMOND	38,75
41.550.1006	10	9.5	60	16	6	6-UNI	37,35

Ref.	Ø	d1	l1	l2	d2	z	€
41.550.1009	10	9.5	60	16	6	9-INOX	43,45
41.550.1201	12	12.7	66	22	6	1-ALU	65,25
41.550.1204	12	12.7	66	22	6	4-DIAMOND	54,55
41.550.1206	12	12.7	66	22	6	6-UNI	52,35
41.550.1209	12	12.7	66	22	6	9-INOX	61,55
41.550.1606	16	16	70	25	6	6-UNI	78,90
41.550.2003	20	19	69	25	6	3-FINE	36,50



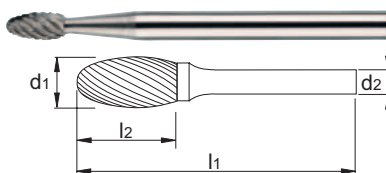
41.553 Phantom

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

HM E Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.553.0306	3	3	38	5.5	3	6-UNI	11,17

Ref.	Ø	d1	l1	l2	d2	z	€
41.553.0636	6	6.3	42	9.5	3	6-UNI	19,57



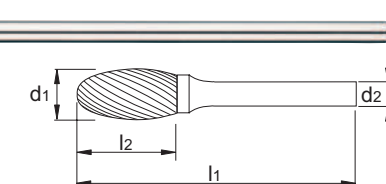
41.559 Phantom

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

HM E Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.559.1014	10	9.5	166	16	6	4-DIAMOND	53,25

Ref.	Ø	d1	l1	l2	d2	z	€



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

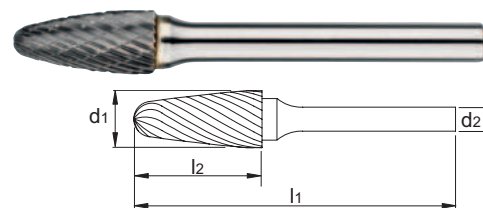
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> 41.560 Phantom

- NL hardmetaal Stiffrees 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 carburo forma F, forma ojival en semiesférica, mango 6 mm
 DE Hartmetall Frässtift Form F, Rundbogenform, Schaft 6 mm
 EN carbide Burr model F, Ball nose tree, shank 6 mm



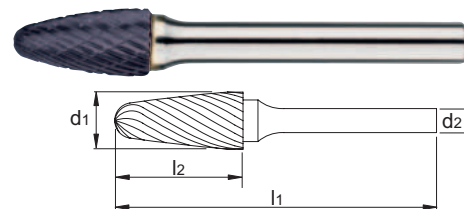
HM F Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.560.0601	6	6	50	18	6	1-ALU	33,75
41.560.0603	6	6	50	18	6	3-FINE	25,10
41.560.0604	6	6	50	18	6	4-DIAMOND	27,60
41.560.0606	6	6	50	18	6	6-UNI	26,55
41.560.0608	6	6	50	18	6	8-STEEL	28,25
41.560.0609	6	6	50	18	6	9-INOX	30,80
41.560.0806	8	8	65	20	6	6-UNI	35,50
41.560.0808	8	8	65	20	6	8-STEEL	34,80
41.560.0809	8	8	65	20	6	9-INOX	38,45
41.560.1001	10	9.5	64	19	6	1-ALU	43,10
41.560.1003	10	9.5	64	19	6	3-FINE	33,75
41.560.1004	10	9.5	64	19	6	4-DIAMOND	37,35
41.560.1006	10	9.5	64	19	6	6-UNI	35,15

Ref.	Ø	d1	l1	l2	d2	z	€
41.560.1008	10	9.5	64	19	6	8-STEEL	38,45
41.560.1009	10	9.5	64	19	6	9-INOX	41,40
41.560.1201	12	12.7	70	25	6	1-ALU	60,25
41.560.1203	12	12.7	70	25	6	3-FINE	49,55
41.560.1204	12	12.7	70	25	6	4-DIAMOND	54,55
41.560.1206	12	12.7	70	25	6	6-UNI	51,75
41.560.1208	12	12.7	70	25	6	8-STEEL	55,45
41.560.1209	12	12.7	70	25	6	9-INOX	60,85
41.560.1601	16	16	70	25	6	1-ALU	86,00
41.560.1604	16	16	70	25	6	4-DIAMOND	77,55
41.560.1606	16	16	70	25	6	6-UNI	74,65
41.560.2001	20	19	69	25	6	1-ALU	43,20
41.560.2013	20	19	82	38	6	3-FINE	51,10

> 41.561 Phantom

- NL hardmetaal Stiffrees 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 carburo forma F, forma ojival en semiesférica, mango 6 mm, TiAIN
 DE Hartmetall Frässtift Form F, Rundbogenform, Schaft 6 mm, TiAIN
 EN carbide Burr model F, Ball nose tree, shank 6 mm, TiAIN



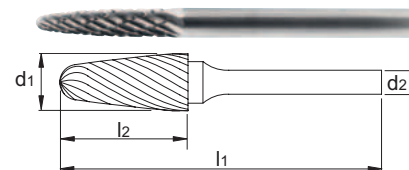
HM TiAIN F Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.561.0606	6	6	80	18	6	6-UNI	33,25
41.561.1006	10	9.5	64	19	6	6-UNI	44,20

Ref.	Ø	d1	l1	l2	d2	z	€
41.561.1206	12	12.7	70	25	6	6-UNI	64,55

> 41.563 Phantom

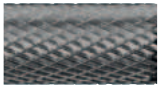
- NL hardmetaal Stiffrees model F, boomvorm met ronde kop, schacht 3 mm
 FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 3 mm
 ES Fresa rotativa carburo forma F, forma ojival en semiesférica, mango 3 mm
 DE Hartmetall Frässtift Form F, Rundbogenform, Schaft 3 mm
 EN carbide Burr model F, Ball nose tree, shank 3 mm



HM F Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.563.0301	3	3	38	12.7	3	1-ALU	15,22
41.563.0303	3	3	38	12.7	3	3-FINE	10,51
41.563.0304	3	3	38	12.7	3	4-DIAMOND	11,59
41.563.0306	3	3	38	12.7	3	6-UNI	11,17
41.563.0309	3	3	38	12.7	3	9-INOX	15,22

Ref.	Ø	d1	l1	l2	d2	z	€
41.563.0631	6	6.3	45	12.7	3	1-ALU	26,80
41.563.0633	6	6.3	45	12.7	3	3-FINE	19,57
41.563.0636	6	6.3	45	12.7	3	6-UNI	19,57
41.563.0639	6	6.3	45	12.7	3	9-INOX	28,95

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



> 41.568 Phantom

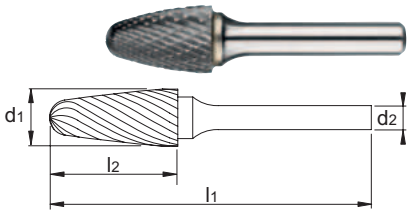
- NL hardmetaal Stiffrees model F, boomvorm met ronde kop, schacht 8 mm
- FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 8 mm
- ES Fresa rotativa carburo forma F, forma ojival en semiesférica, mango 8 mm
- DE Hartmetall Frässtift Form F, Rundbogenform, Schaft 8 mm
- EN carbide Burr model F, Ball nose tree, shank 8 mm

HM

F

Ø8

Ref.	Ø	d1	l1	l2	d2	z	€
41.568.1286	12	12.7	70	25	8	6-UNI	50,75
41.568.1686	16	16	70	25	8	6-UNI	72,45



> 41.569 Phantom

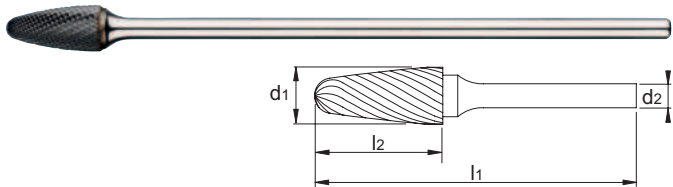
- NL hardmetaal Stiffrees model F, boomvorm met ronde kop, schacht 6 mm, lang
- FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 6 mm, version longue
- ES Fresa rotativa carburo forma F, forma ojival en semiesférica, mango 6 mm, larga
- DE Hartmetall Frässtift Form F, Rundbogenform, Schaft 6 mm, lang
- EN carbide Burr model F, Ball nose tree, shank 6 mm, long

HM

F

Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.569.1214	12	12.7	175	25	6	4-DIAMOND	63,80



Ref.	Ø	d1	l1	l2	d2	z	€

> 41.570 Phantom

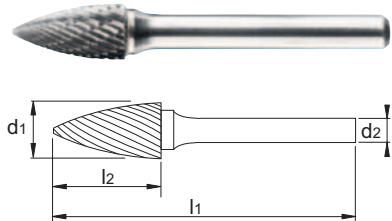
- NL hardmetaal Stiffrees model G, boomvorm spits, schacht 6 mm
- FR Fraise lime Carbure Forme G, Forme ogive, queue 6 mm
- ES Fresa rotativa carburo forma G, forma ojival en punta, mango 6 mm
- DE Hartmetall Frässtift Form G, Spitzbogenform, Schaft 6 mm
- EN carbide Burr model G, pointed tree, shank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

HM

G

Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.570.0601	6	6	50	18	6	1-ALU	33,75
41.570.0603	6	6	50	18	6	3-FINE	25,10
41.570.0604	6	6	50	18	6	4-DIAMOND	27,60
41.570.0606	6	6	50	18	6	6-UNI	26,55
41.570.0608	6	6	50	18	6	8-STEEL	28,25
41.570.0609	6	6	50	18	6	9-INOX	30,80
41.570.0801	8	8	64	19	6	1-ALU	45,90
41.570.0803	8	8	64	19	6	3-FINE	33,75
41.570.0804	8	8	64	19	6	4-DIAMOND	37,35
41.570.0806	8	8	64	19	6	6-UNI	35,90
41.570.0808	8	8	64	19	6	8-STEEL	38,45
41.570.0809	8	8	64	19	6	9-INOX	42,05
41.570.1001	10	9.5	64	19	6	1-ALU	43,10
41.570.1003	10	9.5	64	19	6	3-FINE	31,55
41.570.1004	10	9.5	64	19	6	4-DIAMOND	34,80



Ref.	Ø	d1	l1	l2	d2	z	€
41.570.1006	10	9.5	64	19	6	6-UNI	32,95
41.570.1008	10	9.5	64	19	6	8-STEEL	36,25
41.570.1009	10	9.5	64	19	6	9-INOX	39,10
41.570.1201	12	12.7	70	25	6	1-ALU	60,25
41.570.1203	12	12.7	70	25	6	3-FINE	49,55
41.570.1204	12	12.7	70	25	6	4-DIAMOND	54,55
41.570.1206	12	12.7	70	25	6	6-UNI	51,75
41.570.1208	12	12.7	70	25	6	8-STEEL	55,05
41.570.1209	12	12.7	70	25	6	9-INOX	60,85
41.570.1601	16	16	70	25	6	1-ALU	86,00
41.570.1603	16	16	70	25	6	3-FINE	70,35
41.570.1604	16	16	70	25	6	4-DIAMOND	77,55
41.570.1606	16	16	70	25	6	6-UNI	74,65
41.570.2001	20	19	69	25	6	1-ALU	43,20
41.570.2003	20	19	69	25	6	3-FINE	35,25



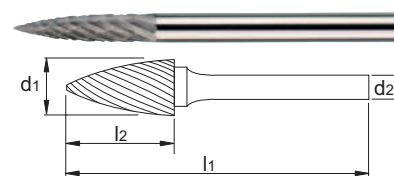
- NL Stiffrezen keuzehulp
- FR Aide à la sélection des fraises lime
- ES Ayuda para la selección de fresas rotativas
- DE Auswahlhilfe Frässtifte
- EN Selection guide for burrs



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> 41.573 Phantom

NL hardmetaal Stiftees model G, boomvorm spits, schacht 3 mm
 FR Fraise lime Carbure Forme G, Forme ogive, queue 3 mm
 ES Fresa rotativa carburo forma G, forma ojival en punta, mango 3 mm
 DE Hartmetall Frässtift Form G, Spitzbogenform, Schaft 3 mm
 EN carbide Burr model G, pointed tree, shank 3 mm



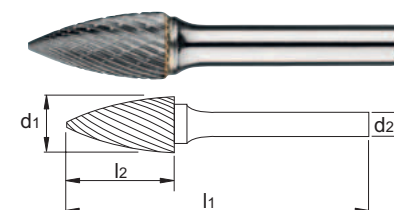
HM G Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.573.0301	3	3	38	10	3	1-ALU	15,22
41.573.0303	3	3	38	10	3	3-FINE	10,51
41.573.0304	3	3	38	10	3	4-DIAMOND	11,59

Ref.	Ø	d1	l1	l2	d2	z	€
41.573.0306	3	3	38	10	3	6-UNI	11,17
41.573.0633	6	6.3	45	12.7	3	3-FINE	19,57
41.573.0636	6	6.3	45	12.7	3	6-UNI	19,57

> 41.578 Phantom

NL hardmetaal Stiftees model G, boomvorm spits, schacht 8 mm
 FR Fraise lime Carbure Forme G, Forme ogive, queue 8 mm
 ES Fresa rotativa carburo forma G, forma ojival en punta, mango 8 mm
 DE Hartmetall Frässtift Form G, Spitzbogenform, Schaft 8 mm
 EN carbide Burr model G, pointed tree, shank 8 mm



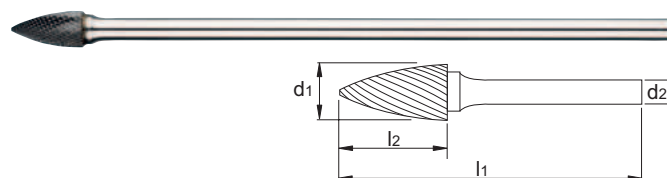
HM G Ø8

Ref.	Ø	d1	l1	l2	d2	z	€
41.578.1286	12	12.7	70	25	8	6-UNI	50,75
41.578.1686	16	16	70	25	8	6-UNI	72,45

Ref.	Ø	d1	l1	l2	d2	z	€
41.578.2086	20	19	83	38	8	6-UNI	123,20

> 41.579 Phantom

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



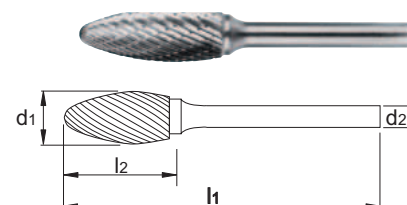
HM G Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.579.0614	6	6	164	12.7	6	4-DIAMOND	43,60
41.579.1014	10	9.5	170	19	6	4-DIAMOND	50,75

Ref.	Ø	d1	l1	l2	d2	z	€
41.579.1214	12	12.7	175	25	6	4-DIAMOND	63,80

> 41.580 Phantom

NL hardmetaal Stiftees model H, vlamvorm, schacht 6 mm
 FR Fraise lime Carbure Forme H, Forme flamme, queue 6 mm
 ES Fresa rotativa carburo forma H, forma llama, mango 6 mm
 DE Hartmetall Frässtift Form H, Flammenform, Schaft 6 mm
 EN carbide Burr model H, flame, shank 6 mm



HM H Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.580.0606	6	6	50	9.5	6	6-UNI	28,95
41.580.0801	8	8	64	19	6	1-ALU	41,65
41.580.0803	8	8	64	19	6	3-FINE	34,05
41.580.0804	8	8	64	19	6	4-DIAMOND	36,90
41.580.0806	8	8	64	19	6	6-UNI	34,80
41.580.0808	8	8	64	19	6	8-STEEL	38,45
41.580.0809	8	8	64	19	6	9-INOX	42,05
41.580.1006	10	9.5	65	19	6	6-UNI	69,30
41.580.1009	10	9.5	65	19	6	9-INOX	75,35
41.580.1201	12	12.7	77	32	6	1-ALU	83,75

Ref.	Ø	d1	l1	l2	d2	z	€
41.580.1203	12	12.7	77	32	6	3-FINE	63,90
41.580.1204	12	12.7	77	32	6	4-DIAMOND	68,85
41.580.1206	12	12.7	77	32	6	6-UNI	65,25
41.580.1208	12	12.7	77	32	6	8-STEEL	71,80
41.580.1209	12	12.7	77	32	6	9-INOX	78,40
41.580.1601	16	16	80	36	6	1-ALU	46,40
41.580.1603	16	16	80	36	6	3-FINE	37,80
41.580.1606	16	16	80	36	6	6-UNI	104,30
41.580.2003	20	19	85	41	6	3-FINE	54,75



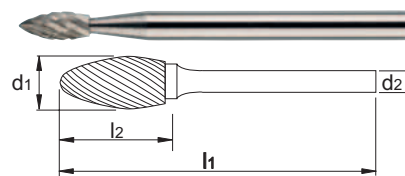
> 41.583 Phantom

NL hardmetaal Stiffrees model H, vlamvorm, schacht 3 mm
 FR Fraise lime Carbure Forme H, Forme flamme, queue 3 mm
 ES Fresa rotativa carburo forma H, forma llama, mango 3 mm
 DE Hartmetall Frässtift Form H, Flammenform, Schaft 3 mm
 EN carbide Burr model H, flame, shank 3 mm

HM H Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.583.0306	3	3	38	6.3	3	6-UNI	11,17

Ref.	Ø	d1	l1	l2	d2	z	€
41.583.0636	6	6	43	10	3	6-UNI	21,74



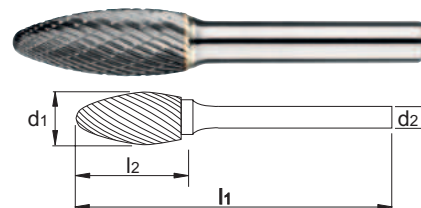
> 41.588 Phantom

NL hardmetaal Stiffrees model H, vlamvorm, schacht 8 mm
 FR Fraise lime Carbure Forme H, Forme flamme, queue 8 mm
 ES Fresa rotativa carburo forma H, forma llama, mango 8 mm
 DE Hartmetall Frässtift Form H, Flammenform, Schaft 8 mm
 EN carbide Burr model H, flame, shank 8 mm

HM H Ø8

Ref.	Ø	d1	l1	l2	d2	z	€
41.588.1286	12	12.7	77	32	8	6-UNI	65,25
41.588.1686	16	16	81	36	8	6-UNI	102,95

Ref.	Ø	d1	l1	l2	d2	z	€
41.588.2086	20	19	86	41	8	6-UNI	127,60



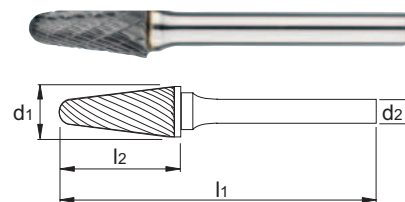
> 41.620 Phantom

NL hardmetaal 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 carburo forma L, forma cónica, con punta redondeada, mango 6 mm
 DE Hartmetall Frässtift Form L, Rundkegelform, Schaft 6 mm
 EN carbide Burr model L, ball nose cone, shank 6 mm

HM L Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.620.0601	6	6	50	16	6	1-ALU	35,90
41.620.0603	6	6	50	16	6	3-FINE	25,10
41.620.0604	6	6	50	16	6	4-DIAMOND	28,00
41.620.0606	6	6	50	16	6	6-UNI	26,55
41.620.0801	8	8	70	22	6	1-ALU	45,90
41.620.0806	8	8	70	22	6	6-UNI	33,75
41.620.0809	8	8	70	22	6	9-INOX	39,85
41.620.1001	10	9.5	74	27	6	1-ALU	54,40
41.620.1006	10	9.5	74	27	6	6-UNI	40,25

Ref.	Ø	d1	l1	l2	d2	z	€
41.620.1008	10	9.5	74	27	6	8-STEEL	47,80
41.620.1009	10	9.5	74	27	6	9-INOX	52,25
41.620.1201	12	12.7	76	28	6	1-ALU	66,00
41.620.1204	12	12.7	76	28	6	4-DIAMOND	57,35
41.620.1206	12	12.7	76	28	6	6-UNI	54,55
41.620.1208	12	12.7	76	28	6	8-STEEL	59,45
41.620.1209	12	12.7	76	28	6	9-INOX	65,25
41.620.1604	16	16	77	30	6	4-DIAMOND	35,60
41.620.1606	16	16	77	30	6	6-UNI	88,90



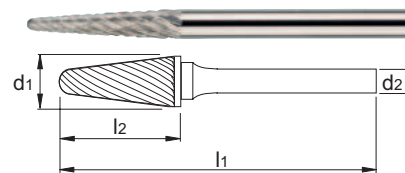
> 41.623 Phantom

NL hardmetaal 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 carburo forma L, forma cónica, con punta redondeada, mango 3 mm
 DE Hartmetall Frässtift Form L, Rundkegelform, Schaft 3 mm
 EN carbide Burr model L, ball nose cone, shank 3 mm

HM L Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.623.0301	3	3	38	12.7	3	1-ALU	15,96
41.623.0303	3	3	38	12.7	3	3-FINE	10,51

Ref.	Ø	d1	l1	l2	d2	z	€
41.623.0304	3	3	38	12.7	3	4-DIAMOND	11,59
41.623.0306	3	3	38	12.7	3	6-UNI	11,17



> 41.628 Phantom

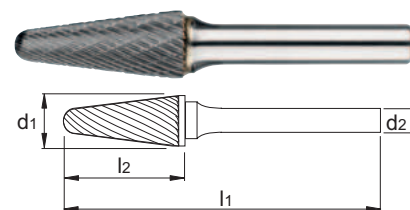
- NL hardmetaal Stifffrees model L, kegelvorm, met ronde kop, schacht 8 mm
 FR Fraise lime Carbone Forme L, Forme conique à bout arrondi, queue 8 mm
 ES Fresa rotativa carburo forma L, forma cónica, con punta redondeada, mango 8 mm
 DE Hartmetall Frässtift Form L, Rundkegelform, Schaft 8 mm
 EN carbide Burr model L, ball nose cone, shank 8 mm

HM

L

Ø8

Ref.	Ø	d1	l1	l2	d2	z	€
41.628.1286	12	12.7	77	32	8	6-UNI	52,95
41.628.1686	16	16	78	33	8	6-UNI	88,40



> 41.629 Phantom

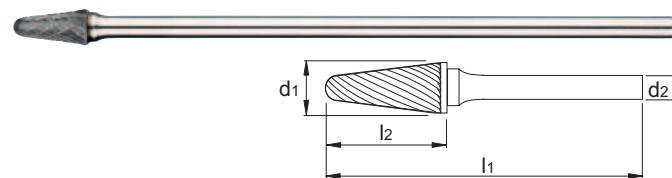
- NL hardmetaal Stifffrees model L, kegelvorm, met ronde kop, schacht 6 mm, lang
 FR Fraise lime Carbone Forme L, Forme conique à bout arrondi, queue 6 mm, version longue
 ES Fresa rotativa carburo forma L, forma cónica, con punta redondeada, mango 6 mm, larga
 DE Hartmetall Frässtift Form L, Rundkegelform, Schaft 6 mm, lang
 EN carbide Burr model L, ball nose cone, shank 6 mm, long

HM

L

Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.629.1214	12	12.7	178	28	6	4-DIAMOND	68,10



Ref.	Ø	d1	l1	l2	d2	z	€
41.628.2086	20	19	86	41	8	6-UNI	137,70

> 41.630 Phantom

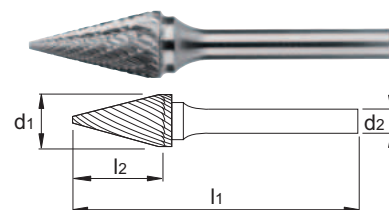
- NL hardmetaal Stifffrees model M, kegelvorm, spits, schacht 6 mm
 FR Fraise lime Carbone Forme M, Forme conique à bout pointu, queue 6 mm
 ES Fresa rotativa carburo forma M, forma cónica, en punta, mango 6 mm
 DE Hartmetall Frässtift Form M, Spitzkegelform, Schaft 6 mm
 EN carbide Burr model M, cone, shank 6 mm

HM

M

Ø6

Ref.	Ø	d1	l1	l2	d2	z	€
41.630.0601	6	6	50	12.7	6	1-ALU	32,95
41.630.0603	6	6	50	12.7	6	3-FINE	24,74
41.630.0606	6	6	50	12.7	6	6-UNI	26,80
41.630.0611	6	6	50	19	6	1-ALU	35,15
41.630.0613	6	6	50	19	6	3-FINE	26,55
41.630.0616	6	6	50	19	6	6-UNI	27,55
41.630.0621	6	6	50	25	6	1-ALU	38,00
41.630.0623	6	6	50	25	6	3-FINE	28,35
41.630.0626	6	6	50	25	6	6-UNI	32,30
41.630.0806	8	8	63	18	6	6-UNI	38,85



Ref.	Ø	d1	l1	l2	d2	z	€
41.630.1001	10	9.5	64	16	6	1-ALU	51,75
41.630.1003	10	9.5	64	16	6	3-FINE	38,00
41.630.1006	10	9.5	64	16	6	6-UNI	38,80
41.630.1201	12	12.7	70	22	6	1-ALU	66,00
41.630.1203	12	12.7	70	22	6	3-FINE	48,80
41.630.1206	12	12.7	70	22	6	6-UNI	49,65
41.630.1601	16	16	73	25	6	1-ALU	38,35
41.630.1603	16	16	73	25	6	3-FINE	74,65
41.630.1606	16	16	73	25	6	6-UNI	76,80

> 41.633 Phantom

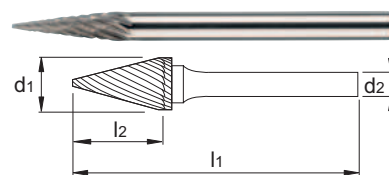
- NL hardmetaal Stifffrees model M, kegelvorm, spits, schacht 3 mm
 FR Fraise lime Carbone Forme M, Forme conique à bout pointu, queue 3 mm
 ES Fresa rotativa carburo forma M, forma cónica, en punta, mango 3 mm
 DE Hartmetall Frässtift Form M, Spitzkegelform, Schaft 3 mm
 EN carbide Burr model M, cone, shank 3 mm

HM

M

Ø3

Ref.	Ø	d1	l1	l2	d2	z	€
41.633.0301	3	3	38	11	3	1-ALU	15,22
41.633.0303	3	3	38	11	3	3-FINE	10,51



Ref.	Ø	d1	l1	l2	d2	z	€
41.633.0306	3	3	38	11	3	6-UNI	11,17

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

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	23,95
42.500.1000	10	4-9	45	6	23,95
42.500.1500	15	6-14	55	8	30,65
42.500.2000	20	8-18	65	10	47,90
42.500.2500	25	10-23	78	12	65,95

Ref.	d1	Min-Max Ø	l1	d2	€
42.500.2800	28	11-26	86	12	88,60
42.500.3000	30	12-28	88	12	97,55
42.500.3500	35	14-33	116	16	147,80
42.500.4000	40	16-38	132	16	209,95
42.500.5000	50	20-48	136	16	295,00



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	P 12	K 31	K 32	N 41
≤600 N/mm²	≤850 N/mm²	GG	GGG GTS-GTW	Alu

17-22	10-15	15-20	20-25	35-45
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Ref.	d1	Min-Max Ø	l1	d2	€
42.533.0630	6.3	1,5-6,3	45	5	6,35
42.533.0830	8.3	2-8,3	50	6	7,70
42.533.1040	10.4	2,5-10,4	50	6	8,51
42.533.1240	12.4	2,8-12,4	56	8	10,06
42.533.1440	14.4	2,9-14,4	56	8	11,17

Ref.	d1	Min-Max Ø	l1	d2	€
42.533.1650	16.5	3,2-16,5	60	10	12,50
42.533.2050	20.5	3,5-20,5	63	10	16,02
42.533.2500	25	3,8-25	67	10	23,05
42.533.3100	31	4,2-31	71	12	33,70

> 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

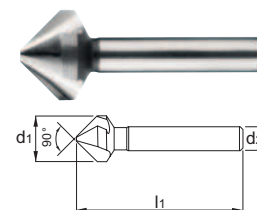


P 11	P 12	P 13	K 31	K 32	N 41	N 42	N 51
≤600 N/mm²	≤850 N/mm²	<1000 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu

15-20	8-12	6-10	10-15	15-20	30-40	20-25	15-25
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Ref.	d1	Min-Max Ø	l1	d2	€
42.535.0630	6.3	1,5-6,3	45	5	11,65
42.535.0830	8.3	2-8,3	50	6	13,97
42.535.1040	10.4	2,5-10,4	50	6	14,83
42.535.1240	12.4	2,8-12,4	56	8	18,92
42.535.1440	14.4	2,9-14,4	56	10	21,85
42.535.1650	16.5	3,2-16,5	60	10	23,28

Ref.	d1	Min-Max Ø	l1	d2	€
42.535.2050	20.5	3,5-20,5	63	10	27,25
42.535.2500	25	3,8-25	67	10	40,05
42.535.3100	31	4,2-31	71	12	62,30
42.535.4000	40	8-40	80	13	118,00
42.535.5000	50	10-50	90	13	224,00



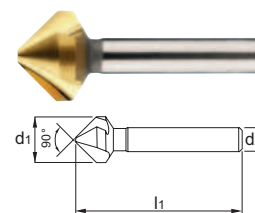
> 42.536 INTERNATIONAL TOOLS

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 ≤500 N/mm²	P 12 ≤550 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
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	14,67
42.536.0830	8.3	2-8,3	50	6	17,46
42.536.1040	10.4	2,5-10,4	50	6	18,85
42.536.1240	12.4	2,8-12,4	56	8	23,05
42.536.1440	14.4	2,9-14,4	56	10	26,35

Ref.	d1	Min-Max Ø	l1	d2	€
42.536.1650	16.5	3,2-16,5	60	10	27,90
42.536.2050	20.5	3,5-20,5	63	10	34,95
42.536.2500	25	3,8-25	67	10	50,30
42.536.3100	31	4,2-31	71	12	74,20



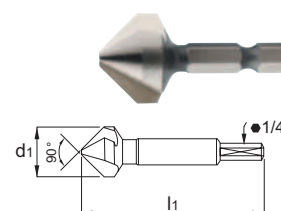
> 42.543 INTERNATIONAL TOOLS

NL ECO HSS Verzinkboor 90°, 3 snijkanten, 1/4" (6,35 mm)-zeskant
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, 1/4" (6,35 mm) Hexa-Bitaufnahme
EN ECO HSS Countersink 90°, 3 flute, 1/4" (6,35 mm) hexagonal shank

HSS			90°			ECO	
P 11 ≤500 N/mm²	P 12 ≤550 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	7,00
42.543.0830	8.3	2-8,3	50	8,39
42.543.1040	10.4	2,5-10,4	50	9,79

Ref.	d1	Min-Max Ø	l1	€
42.543.1240	12.4	2,8-12,4	50	11,87
42.543.1650	16.5	3,2-16,5	50	15,37
42.543.2050	20.5	3,5-20,5	50	18,85



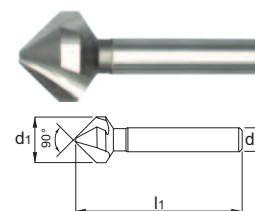
> 42.547 Phantom

NL HP2 UNI HSS-E Vari Verzinkboor 90°, 3 snijkanten
FR Fraise à chanfreiner Vari HSS-E HP2 UNI 90°, 3 taillants
ES Avellanador Vari HSS-E HP2 UNI 90°, 3 labios
DE HP2 UNI HSS-E Kegelsenker ungleichteilung 90°, 3 Schneiden
EN HP2 UNI HSS-E Vari Countersink 90°, 3 flute

HSS-E	DIN 335-C			90°				VARI	HP2 UNI			
P 11 ≤500 N/mm²	P 12 ≤550 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
25-35	20-30	15-25	7-13	10-18	9-15	20-30	20-30	40-60	30-40	30-40	20-30	40-60

Ref.	d1	Min-Max Ø	l1	d2	€
42.547.0430	4.3	1,3-4,3	40	4	18,54
42.547.0530	5.3	1,5-5,3	40	4	19,03
42.547.0600	6	1,5-6	45	5	19,62
42.547.0630	6.3	1,5-6,3	45	5	19,51
42.547.0730	7.3	1,8-7,3	50	6	19,51
42.547.0800	8	2-8	50	6	20,28
42.547.0830	8.3	2-8,3	50	6	20,01
42.547.0940	9.4	2,2-9,4	50	6	21,25
42.547.1000	10	2,5-10	50	6	23,52
42.547.1040	10.4	2,5-10,4	50	6	23,13

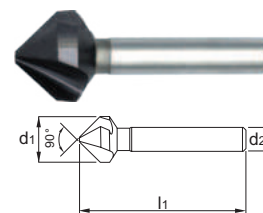
Ref.	d1	Min-Max Ø	l1	d2	€
42.547.1150	11.5	2,8-11,5	50	8	25,70
42.547.1240	12.4	2,8-12,4	56	8	25,35
42.547.1440	14.4	2,9-14,4	56	8	27,85
42.547.1500	15	3,2-15	60	10	30,60
42.547.1650	16.5	3,2-16,5	60	10	30,35
42.547.2050	20.5	3,5-20,5	63	10	41,15
42.547.2500	25	3,8-25	67	10	50,55
42.547.2800	28	4-28	71	12	82,95
42.547.3100	31	4-31	71	12	77,60



NIEUW NOUVEAU NUEVO NEU

> 42.548 Phantom

NL HP2 UNI HSS-E Vari Verzinkboor 90°, 3 snijkanten, AITiN-X
 FR Fraise à chanfreiner Vari HSS-E HP2 UNI 90°, 3 taillants, AITiN-X
 ES Avellanador Vari HSS-E HP2 UNI 90°, 3 labios, AITiN-X
 DE HP2 UNI HSS-E Kegelsenker ungleichteilung 90°, 3 Schneiden, AITiN-X
 EN HP2 UNI HSS-E Vari Countersink 90°, 3 flute, AITiN-X



NIEUW NOUVEAU NUEVO NEU

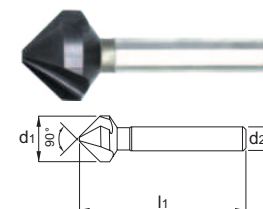
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	S 71 Ni/Co	S 72 Ti
30-40 H	25-35 F	20-30 F	10-16 A	13-21 B	12-20 A	25-35 H	30-40 H	60-80 I	30-50 I	40-60 G	30-40 G	7-11 A	7-11 B

Ref.	d1	Min-Max Ø	l1	d2	€
42.548.0430	4.3	1,3-4,3	40	4	24,70
42.548.0600	6	1,5-6	45	5	25,85
42.548.0630	6.3	1,5-6,3	45	5	25,85
42.548.0800	8	2-8	50	6	29,40
42.548.0830	8.3	2-8,3	50	6	29,40
42.548.1000	10	2,5-10	50	6	30,60
42.548.1040	10.4	2,5-10,4	50	6	30,60

Ref.	d1	Min-Max Ø	l1	d2	€
42.548.1150	11.5	2,8-11,5	50	8	37,90
42.548.1240	12.4	2,8-12,4	56	8	37,90
42.548.1500	15	3,2-15	60	10	42,80
42.548.1650	16.5	3,2-16,5	60	10	42,80
42.548.2050	20.5	3,5-20,5	63	10	55,55
42.548.2500	25	3,8-25	67	10	67,95
42.548.3100	31	4-31	71	12	107,65

> 42.558 Phantom

NL HP2 UNI HSS-E Vari Verzinkboor 90°, 3 snijkanten, AITiN-X, met drievlaks schacht
 FR Fraise à chanfreiner Vari HSS-E HP2 UNI 90°, 3 taillants, AITiN-X, queue à trois méplats
 ES Avellanador Vari HSS-E HP2 UNI 90°, 3 labios, AITiN-X, con 3 chaflanes
 DE HP2 UNI HSS-E Kegelsenker ungleichteilung 90°, 3 Schneiden, AITiN-X, 3-Flächen-Schaft
 EN HP2 UNI HSS-E Vari Countersink 90°, 3 flute, AITiN-X, with 3 flat surfaces

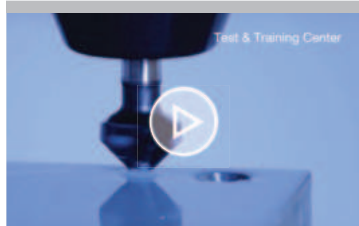


NIEUW NOUVEAU NUEVO NEU

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 52 CuAlFe	S 71 Ni/Co	S 72 Ti
30-40 H	25-35 F	20-30 F	10-16 A	13-21 B	12-20 A	25-35 H	30-40 H	60-80 I	30-50 I	40-60 G	30-40 G	7-11 A	7-11 B

Ref.	d1	Min-Max Ø	l1	d2	€
42.558.0630	6.3	1,5-6,3	45	5	29,40
42.558.0830	8.3	2-8,3	50	6	32,95
42.558.1040	10.4	2,5-10,4	50	6	34,25
42.558.1240	12.4	2,8-12,4	56	8	40,00
42.558.1500	15	3,2-15	60	10	46,50
42.558.1650	16.5	3,2-16,5	60	10	46,95

Ref.	d1	Min-Max Ø	l1	d2	€
42.558.2050	20.5	3,5-20,5	63	10	59,25
42.558.2500	25	3,8-25	67	10	72,30
42.558.3100	31	4-31	71	12	113,40
42.558.4000	40	8-40	112	12	252,00
42.558.5000	50	10-50	125	16	352,00



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

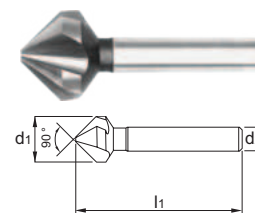
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www.phantom.eu

> 42.582 Phantom

- NL HRC50 HSS-E 8% Vari Verzinkboor 90°, meersnijder, met drievlaks schacht
- FR Fraise à chanfreiner Vari HSS-E 8% HRC50 90°, multi-dents, queue à trois méplats
- ES Avellanador Vari HSS-E 8% HRC50 90°, multi labios, con 3 chaflanes
- DE HRC50 HSS-E 8% Kegelsenker ungleichteilung 90°, Mehrschneiden, 3-Flächen-Schaft
- EN HRC50 HSS-E 8% Vari Countersink 90°, Multi Flute, with 3 flat surfaces



NIEUW NOUVEAU NUEVO NEU

P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	H 15 HRC	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	S 71 Ni/Co	S 72 Ti
30-40 I	25-35 I	20-30 I	10-16 I	9-14 I	13-21 I	12-20 I	25-35 I	30-40 I	60-80 I	30-50 I	40-60 I	30-40 I	7-11 B	7-11 H

Ref.	d1	Min-Max Ø	l1	d2	z	€
42.582.0630	6.3	1,5-6,3	45	5	4	31,18
42.582.0830	8.3	2-8,3	50	6	4	32,72
42.582.1040	10.4	2,5-10,4	50	6	4	39,10
42.582.1240	12.4	2,8-12,4	56	8	5	42,68

Ref.	d1	Min-Max Ø	l1	d2	z	€
42.582.1650	16.5	3,2-16,5	60	10	5	51,42
42.582.2050	20.5	3,5-20,5	63	10	5	72,92
42.582.2500	25	3,8-25	67	10	5	95,04
42.582.3100	31	4-31	71	12	5	160,49

> 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



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 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28
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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	50,30
44.100.0200	11	6-8-10-12-14-16-18-20-22-24-25	77	4	12	52	76,25
44.100.0300	7	6-8-10-12-14-16-18	59	4	10	34	64,70
44.100.0400	14	8-10-12-14-16-18-20-22-24-26-28-30-32-34	92	4	12	67	142,20

> 44.102 Phantom

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



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 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28
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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	56,65
44.102.0630	13	6-8-10-12-14-16-18-20-22-24-26-28-30	88	4	13	65	68,10
44.102.0638	12	6-9-13-16-19-21-23-26-29-32-35-38	87	4	13	63	93,90

> 44.130 Phantom

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



P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≥850 N/mm²	M 22 INOX ≥850 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	22-30	15-20	8-12	5-8	15-20	25-30	45-50	25-40	22-28
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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	44,65
44.130.0300	13	6-8-10-12-14-16-18-20-22-24-26-28-30	98	4	13	74	76,95

> 44.134 Phantom

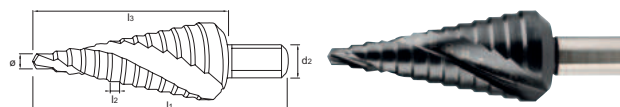
NL HSS Getrapte Plaatboor gespiraliseerd, TiAIN

FR Foret étagé HSS goujure hélicoïdale, TiAIN

ES Broca escalonada HSS helicoidal, TiAIN

DE HSS Stufenbohrer spiralförmig, TiAIN

EN HSS multi diameter Step Drill with spiral flute, TiAIN



Z=2

HSS

TiAIN

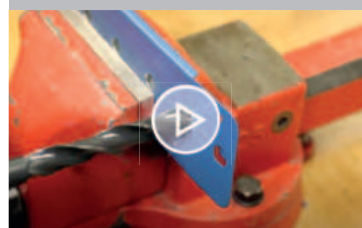


max. 4 mm

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

25-27	22-30	15-20	8-12	5-8	15-20	25-30	45-50	25-40	22-28
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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	69,05
44.134.0300	13	6-8-10-12-14-16-18-20-22-24-26-28-30	98	4	13	74	111,65



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



Watch me

www.phantom.eu

> 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



118°

P 11	P 12	N 41	N 42	N 61
≤600 N/mm²	≤850 N/mm²	Alu	Alu Si>10%	PVC

25-27	22-30	50-70	40-60	22-28
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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	354,00
44.200.0700	6-30	95	10	74,20
44.200.0800	6-25,4	84	8	61,40



> 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	Image	€
46.100.0010	Mango II		11,14
46.100.1000	Classic A		10,66
46.100.1200	ALU		19,21
46.100.1300	Handychuck		47,90

> 46.120 SHAVIV

NL type B
FR type B
ES tipo B
DE Typ B
EN type B



Ref.	Type	Image	1	2	3	4	P	H	M	K	N	€
46.120.0250	Mango II B + B10, B20					HSS	P				N	28,80
46.120.0255	Mango II B EC + B10, B20					HSS	P				N	17,41
46.120.0260	Mango II B + B10x10					HSS	P				N	38,30
46.120.0265	Mango II B EC + B10x10					HSS	P				N	24,97
46.120.0500	UB2000 + B10					HSS	P				N	22,48
46.120.1001	B EC (Extra Close)											3,06
46.120.1002	B											13,32
46.120.2100	B10					HSS	P				N	2,43
46.120.2101	B10P					TiN	P		M		N	3,91
46.120.2102	B10C					VHM SC		H			N	13,46
46.120.2109	B10L					HSS	P				N	2,69
46.120.2110	B11					HSS	P				N	2,80
46.120.2120	B12					HSS	P				N	2,43
46.120.2121	B12P					TiN	P		M		N	4,01
46.120.2200	B20					HSS				K	N	2,43
46.120.2201	B20P					TiN				K	N	4,01
46.120.2250	B25					HSS	P				N	2,43
46.120.2252	B25C					VHM SC	P				N	13,46
46.120.2300	B30					HSS	P				N	3,38
46.120.2301	B30P					TiN	P		M		N	5,34
46.120.2320	B32					HSS				K	N	3,38
46.120.2500	B50					HM-TIP	P	H	M	K	N	9,34
46.120.2600	B60					HSS	P				N	5,22
46.120.2700	B70					HM-TIP	P	H	M	K	N	12,29

> 46.300 SHAVIV

NL type E
FR type E
ES tipo E
DE Typ E
EN type E



Ref.	Type	Image	1	2	3	4	P	H	M	K	N	€
46.300.0250	Mango II E + E100, E200, E300					HSS	P				N	33,20
46.300.0255	Mango II E EC + E100, E200, E300					HSS	P				N	21,69
46.300.0260	Mango II E + E100x10					HSS	P				N	44,25
46.300.0265	Mango II E EC + E100x10					HSS	P				N	30,95
46.300.1000	Handle 1 + E100, E200, E300					HSS	P				N	26,65
46.300.1100	Handle 1											16,15
46.300.1500	MB2000 + E100											19,21
46.300.2001	E EC (Extra Close)											3,22
46.300.2002	E											13,32
46.300.2100	E100					HSS	P				N	2,90
46.300.2101	E100P					TiN	P		M		N	4,85
46.300.2102	E100C					VHM SC		H			N	15,68
46.300.2104	E100S					HSS-E	P		M		N	3,11
46.300.2109	E100L					HSS	P				N	3,01
46.300.2110	E110					HSS	P				N	3,01
46.300.2111	E110P					TiN	P		M		N	5,07
46.300.2150	E111					HSS	P				N	3,01
46.300.2200	E200					HSS				K	N	2,90
46.300.2201	E200P					TiN				K	N	4,85
46.300.2250	E250					HSS	P				N	2,90
46.300.2300	E300					HSS	P				N	3,38
46.300.2320	E320					HSS				K	N	3,38
46.300.2350	E350					HSS				K	N	2,90
46.300.2600	E600					HSS	P				N	5,27
46.300.2601	E601					HSS	P				N	6,70
46.300.2720	E720					HSS	P				N	3,69

**> 49.140 INTERNATIONAL TOOLS**

NL ECO PRO hardmetaal Set Stiftfrezen
FR Jeu de Fraises limes Carbure ECO PRO
ES Juego de fresa rotativa carburo ECO PRO
DE ECO PRO Hartmetall Satz Frässtifte
EN ECO PRO carbide Set Burr

**VHM**
SC**Ø6****ECO**
PRO

Ref.	Ø	z	Contents	€
49.140.0106	10	6-UNI	Form B, C, D, F, G	101,45

Ref.	Ø	z	Contents	€
49.140.0126	12	6-UNI	Form B, C, D, F, G	148,65

> 49.150 Phantom

NL hardmetaal Set Stiftfrezen
FR Jeu de Fraises limes Carbure
ES Juego de fresa rotativa carburo
DE Hartmetall Satz Frässtifte
EN carbide Set Burr

**VHM**
SC**Ø6**

Ref.	Ø	z	Contents	€
49.150.0101	10	1-ALU	Form B, C, D, F, G	213,00
49.150.0103	10	3-FINE	Form B, C, D, F, G	170,00
49.150.0104	10	4-DIAMOND	Form B, C, D, F, G	184,00
49.150.0106	10	6-UNI	Form B, C, D, F, G	175,00

Ref.	Ø	z	Contents	€
49.150.0108	10	8-STEEL	Form B, C, D, F, G	159,00
49.150.0109	10	9-INOX	Form A, C, D, F, G	166,00
49.150.0126	12	6-UNI	Form B, C, D, F, G	244,00

> 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

**HSS****DIN**
335-C**90°****ECO****P 11**
S800 N/mm²**P 12**
S850 N/mm²**K 31**
GG**K 32**
GGG
GTS-GTW**N 41**
Alu

17-22	10-15	15-20	20-25	35-45
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Ref.	Type	Ø mm	€
49.240.0630	42.533	6,3-8,3-10,4-12,4-16,5-20,5 mm	61,00
49.240.0631	42.533	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	88,00

Ref.	Type	Ø mm	€
49.240.1020	42.533	10,4-12,4-16,5-20,5 mm	47,00
49.240.1025	42.533	10,4-12,4-16,5-20,5-25 mm	70,00



> 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

HSS

DIN 335-C

P 11

P 12

P 13

K 31

K 32

N 41

N 42

N 51

≤500 N/mm²

≤850 N/mm²

<1000 N/mm²

GG

GGG GTS-GTW

Alu

Alu Si>10%

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	122,50
49.242.0631	42.535	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	149,95

Ref.	Type	Ø mm	€
49.242.1020	42.535	10,4-12,4-16,5-20,5 mm	84,30
49.242.1025	42.535	10,4-12,4-16,5-20,5-25 mm	124,30

> 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

P 11

P 12

P 13

M 21

K 31

K 32

N 41

N 42

N 51

≤500 N/mm²

≤850 N/mm²

<1000 N/mm²

INOX >850N/mm²

GG

GGG GTS-GTW

Alu

Alu Si>10%

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	136,70
49.244.0631	42.536	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	187,20

Ref.	Type	Ø mm	€
49.244.1020	42.536	10,4-12,4-16,5-20,5 mm	104,75
49.244.1025	42.536	10,4-12,4-16,5-20,5-25 mm	155,10

> 49.248 INTERNATIONAL TOOLS

NL ECO HSS set Verzinkboren 42.543, 90°, 3 snijkanten, 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, 1/4" (6,35 mm) Hexa-Bitaufnahme
EN ECO HSS Countersink set 42.543, 90°, 3 flute, 1/4" (6,35 mm) hexagonal shank



HSS

90°

P 11

P 12

P 13

K 31

K 32

N 41

N 42

N 51

≤500 N/mm²

≤850 N/mm²

<1000 N/mm²

GG

GGG GTS-GTW

Alu

Alu Si>10%

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	70,35

Ref.	Type	Ø mm	€

> 49.263 Phantom

NL HP2 UNI HSS-E set Verzinkboren 42.547, 90°, 3 snijkanten
 FR Jeu de fraises à ébavurer HSS-E HP2 UNI 42.547, 90°, 3 taillants
 ES Juego de avellanadores HSS-E HP2 UNI 42.547, 90°, 3 labios
 DE HP2 UNI HSS-E Satz Kegelsenker 42.547, 90°, 3 Schneiden
 EN HP2 UNI HSS-E Countersink set 42.547, 90°, 3 flute



NIEUW NOUVEAU NUEVO NEU

HSS-E	DIN 335-C			90°			VARI	HP2 UNI				
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
25-35	20-30	15-25	7-13	10-18	9-15	20-30	20-30	40-60	30-40	30-40	20-30	40-60

Ref.	Type	Ø mm	€
49.263.0620	42.547	6,3-8,3-10,4-12,4-16,5-20,5 mm	168,00
49.263.0625	42.547	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	219,00

Ref.	Type	Ø mm	€
49.263.1020	42.547	10,4-12,4-16,5-20,5 mm	129,00
49.263.1025	42.547	10,4-12,4-16,5-20,5-25 mm	179,00

> 49.264 Phantom

NL HP2 UNI HSS-E set Verzinkboren 42.548, 90°, 3 snijkanten, AITiN-X
 FR Jeu de fraises à ébavurer HSS-E HP2 UNI 42.548, 90°, 3 taillants, AITiN-X
 ES Juego de avellanadores HSS-E HP2 UNI 42.548, 90°, 3 labios, AITiN-X
 DE HP2 UNI HSS-E Satz Kegelsenker 42.548, 90°, 3 Schneiden, AITiN-X
 EN HP2 UNI HSS-E Countersink set 42.548, 90°, 3 flute, AITiN-X



NIEUW NOUVEAU NUEVO NEU

HSS-E	AlTiN X	DIN 335-C			90°			VARI	HP2 UNI				
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	S 71	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	Ni/Co	Ti
30-40	25-35	20-30	10-16	13-21	12-20	25-35	30-40	60-80	30-50	40-60	30-40	7-11	7-11

Ref.	Type	Ø mm	€
49.264.0620	42.548	6,3-8,3-10,4-12,4-16,5-20,5 mm	231,00
49.264.0625	42.548	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	299,00

Ref.	Type	Ø mm	€
49.264.1020	42.548	10,4-12,4-16,5-20,5 mm	176,00
49.264.1025	42.548	10,4-12,4-16,5-20,5-25 mm	244,00

> 49.266 Phantom

NL HP2 UNI HSS-E set Verzinkboren 42.558, 90°, 3 snijkanten, AITiN-X, met drievlakschacht
 FR Jeu de fraises à ébavurer HSS-E HP2 UNI 42.558, 90°, 3 taillants, AITiN-X, queue à trois méplats
 ES Juego de avellanadores HSS-E HP2 UNI 42.558, 90°, 3 labios, AITiN-X, con 3 chaflanes
 DE HP2 UNI HSS-E Satz Kegelsenker 42.558, 90°, 3 Schneiden, AITiN-X, 3-Flächen-Schaft
 EN HP2 UNI HSS-E Countersink set 42.558, 90°, 3 flute, AITiN-X, with 3 flat surfaces



NIEUW NOUVEAU NUEVO NEU

HSS-E	AITiN X	DIN 335-C			90°					HP2 UNI				
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	S 71	S 72	
≤600 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	Ni/Co	Ti	
30-40	25-35	20-30	10-16	13-21	12-20	25-35	30-40	60-80	30-50	40-60	30-40	7-11	7-11	

Ref.	Type	Ø mm	€
49.266.0620	42.558	6,3-8,3-10,4-12,4-16,5-20,5 mm	252,00
49.266.0625	42.558	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	324,00

Ref.	Type	Ø mm	€
49.266.1020	42.558	10,4-12,4-16,5-20,5 mm	189,00
49.266.1025	42.558	10,4-12,4-16,5-20,5-25 mm	262,00

> 49.413 Phantom

NL HSS Set Getrapte Plaatboren gepsiraliseerd, 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/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²
M 21 INOX ≤850 N/mm²	M 22 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	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	161,00

Ref.	Ø mm	€

> 49.414 Phantom

NL HSS Set Getrapte Plaatboren gepsiraliseerd, 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/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²
M 21 INOX ≤850 N/mm²	M 22 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	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	230,00

Ref.	Ø mm	€

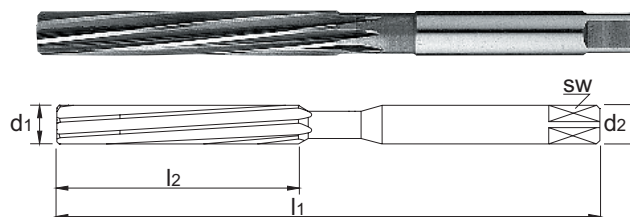
**> 51.110 Phantom**

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	P 12	P 13	K 31	K 32	N 41	N 51
≤500 N/mm²	≤550 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu	Cu



Ref.	d1	l1	l2	d2	sw	€
51.110.0200	2	50	25	2	1.6	45,75
51.110.0250	2.5	58	29	2.5	2	43,35
51.110.0300	3	62	31	3	2.24	20,38
51.110.0350	3.5	71	35	3.5	2.8	20,38
51.110.0400	4	76	38	4	3.15	18,63
51.110.0450	4.5	81	41	4.5	3.55	20,38
51.110.0500	5	87	44	5	4	20,18
51.110.0550	5.5	93	47	5.5	4.5	22,13
51.110.0600	6	93	47	6	4.5	21,76
51.110.0650	6.5	100	50	6.5	5	22,82
51.110.0700	7	107	54	7	5.6	24,45
51.110.0750	7.5	115	58	7.5	6.3	24,91
51.110.0800	8	115	58	8	6.3	26,55
51.110.0850	8.5	124	62	8.5	7.1	27,65
51.110.0900	9	124	62	9	7.1	29,15
51.110.0950	9.5	133	66	9.5	8	34,75
51.110.1000	10	133	66	10	8	32,40
51.110.1100	11	142	71	11	9	42,20

Ref.	d1	l1	l2	d2	sw	€
51.110.1200	12	152	76	12	10	46,50
51.110.1300	13	152	76	13	10	50,40
51.110.1400	14	163	81	14	11.2	56,55
51.110.1500	15	163	81	15	11.2	61,85
51.110.1600	16	175	87	16	12.5	69,55
51.110.1700	17	175	87	17	12.5	70,75
51.110.1800	18	188	93	18	14	71,60
51.110.1900	19	188	93	19	14	75,20
51.110.2000	20	201	100	20	16	88,60
51.110.2100	21	201	100	21	16	89,10
51.110.2200	22	215	107	22	18	99,15
51.110.2300	23	215	107	23	18	105,40
51.110.2400	24	231	115	24	20	122,25
51.110.2500	25	231	115	25	20	122,70
51.110.2600	26	231	115	26	20	134,25
51.110.2700	27	247	124	27	22.4	144,20
51.110.2800	28	247	124	28	22.4	159,95
51.110.2900	29	247	124	29	22.4	339,00

Ref.	d1	l1	l2	d2	sw	€
51.110.3000	30	247	124	30	22.4	175,55
51.110.3100	31	265	133	31	25	377,00
51.110.3200	32	265	133	32	25	205,95
51.110.3300	33	265	133	33	25	407,00
51.110.3400	34	284	142	34	28	238,40
51.110.3500	35	284	142	35	28	271,00
51.110.3600	36	284	142	36	28	261,00
51.110.3700	37	284	142	37	28	462,00
51.110.3800	38	305	152	38	31.5	303,00
51.110.3900	39	305	152	39	31.5	490,00
51.110.4000	40	305	152	40	31.5	331,00
51.110.4200	42	305	152	42	31.5	349,00
51.110.4400	44	326	163	44	35.5	406,00
51.110.4500	45	326	163	45	35.5	438,00
51.110.4600	46	326	163	46	35.5	604,00
51.110.4800	48	347	174	48	40	662,00
51.110.5000	50	347	174	50	40	540,00

> 51.320 Phantom

NL HSS-E Machineruimer vorm B/D H7
FR Alésoir machine HSS-E forme B/D H7
ES Escariador máquina HSS-E forma B/D H7
DE HSS-E Maschinenreibahlen form B/D H7
EN HSS-E Machine Chucking Reamer form B/D H7

HSS-E DIN 212 B/D h8 H7

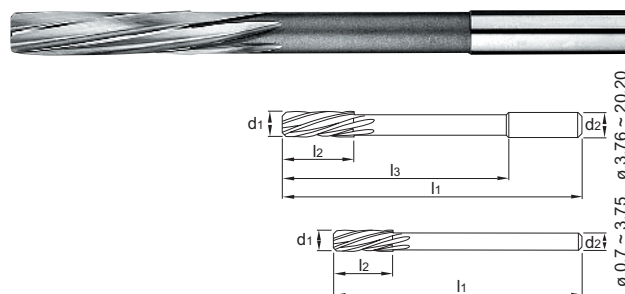
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	S 71	S 72
≤500 N/mm²	≤550 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co	Ti

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	d2	€
51.320.0100	1	38	5		1	34,60
51.320.0150	1.5	40	8		1.5	33,15
51.320.0200	2	49	11		2	30,90
51.320.0250	2.5	57	14		2.5	31,05
51.320.0300	3	61	15		3	31,05
51.320.0350	3.5	70	18		3.5	31,05
51.320.0400	4	75	19	47	4	34,55
51.320.0450	4.5	80	21	52	4.5	34,55
51.320.0500	5	86	23	58	5	35,85
51.320.0550	5.5	93	26	58	5.6	37,10

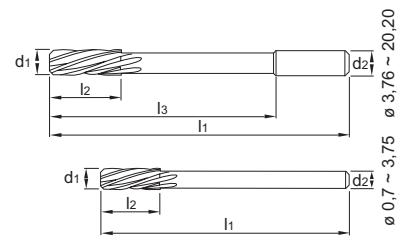
Ref.	d1	l1	l2	l3	d2	€
51.320.0600	6	93	26	58	5.6	37,10
51.320.0650	6.5	101	28	65	6.3	39,95
51.320.0700	7	109	31	73	7.1	39,95
51.320.0750	7.5	109	31	73	7.1	39,95
51.320.0800	8	117	33	81	8	39,95
51.320.0850	8.5	117	33	81	8	46,80
51.320.0900	9	125	36	85	9	46,80
51.320.0950	9.5	125	36	85	9	46,80
51.320.1000	10	133	38	93	10	46,80
51.320.1050	10.5	133	38	93	10	60,30

Ref.	d1	l1	l2	l3	d2	€
51.320.1100	11	142	41	102	10	60,30
51.320.1150	11.5	142	41	102	10	66,85
51.320.1200	12	151	44	111	10	66,85
51.320.1250	12.5	151	44	111	10	79,45
51.320.1300	13	151	44	111	10	79,45
51.320.1350	13.5	160	47	115	12.5	90,30
51.320.1400	14	160	47	117	12.5	90,30
51.320.1450	14.5	162	50	117	12.5	108,95
51.320.1500	15	162	50	117	12.5	108,95
51.320.1600	16	170	52	125	12.5	111,65



> 51.350 Phantom

NL HSS-E Precisie Machineruimer vorm B/D x 0,01 mm
 FR Alésoir machine de précision HSS-E forme B/D x 0,01 mm
 ES Escariador máquina de precisión HSS-E forma B/D x 0,01 mm
 DE HSS-E Präzisions Maschinenreibahlen form B/D x 0,01 mm
 EN HSS-E Precision Machine Reamer form B/D x 0,01 mm



HSS-E	DIN 212 B/D	h8	x0,01	≤0.03 -0,000 +0,003	≤0.06 -0,000 +0,004	>0.06 -0,000 +0,005
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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	S 71 Ni/Co	S 72 Ti
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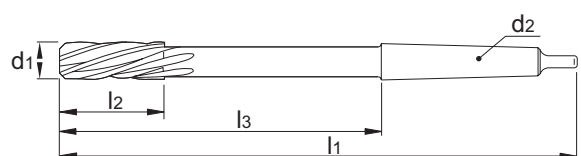
15-22 E	12-17 D	7-10 C	5-7 B	4-6 A	3-5 A	4-5 C	6-15 D	25-35 G	20-30 G	12-17 D	2-3 A	2-3 A
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Ref.	d1	l1	l2	l3	z	d2	€
51.350.0070-51.350.0079	0.7-0.79	33	5		4	0.7-0.79	60,30
51.350.0080-51.350.0089	0.8-0.89	38	5		4	0.8-0.89	54,25
51.350.0090-51.350.0096	0.9-0.96	38	5		4	0.9-0.96	39,25
51.350.0097-51.350.0105	0.97-1.05	38	5		4	0.97-1.05	37,45
51.350.0106-51.350.0132	1.06-1.32	40	5		6	1.06-1.32	34,35
51.350.0133-51.350.0150	1.33-1.5	40	8		6	1.33-1.5	34,35
51.350.0151-51.350.0170	1.51-1.7	43	9		6	1.51-1.7	34,35
51.350.0171-51.350.0179	1.71-1.79	46	10		6	1.71-1.79	34,35
51.350.0180-51.350.0190	1.80-1.9	46	10		6	1.80-1.9	31,90
51.350.0191-51.350.0212	1.91-2.12	49	11		6	1.91-2.12	31,90
51.350.0213-51.350.0236	2.13-2.36	53	12		6	2.13-2.36	31,90
51.350.0237-51.350.0265	2.37-2.65	57	14		6	2.37-2.65	31,65
51.350.0266-51.350.0300	2.66-3	61	15		6	2.66-3	31,65
51.350.0301-51.350.0329	3.01-3.29	65	16		6	3.01-3.29	31,65
51.350.0330-51.350.0335	3.30-3.35	65	16		6	3.30-3.35	32,25
51.350.0336-51.350.0375	3.36-3.75	70	18		6	3.36-3.75	32,25
51.350.0376-51.350.0425	3.76-4.25	75	19	47	6	4	33,60
51.350.0426-51.350.0475	4.26-4.75	80	21	52	6	4.5	33,60
51.350.0476-51.350.0530	4.76-5.3	86	23	58	6	5	34,85
51.350.0531-51.350.0600	5.31-6	93	26	58	6	5.6	36,25
51.350.0601-51.350.0668	6.01-6.68	101	28	65	6	6.3	36,25
51.350.0670	6.70	101	28	65	6	6.3	39,25
51.350.0671-51.350.0750	6.71-7.5	109	31	73	6	7.1	39,25

Ref.	d1	l1	l2	l3	z	d2	€
51.350.0751-51.350.0850	7.51-8.5	117	33	81	6	8	39,25
51.350.0851-51.350.0855	8.51-8.55	125	36	85	6	9	39,25
51.350.0856-51.350.0950	8.56-9.5	125	36	85	6	9	45,35
51.350.0951-51.350.0955	9.51-9.55	133	38	93	6	10	45,35
51.350.0956-51.350.1005	9.56-10.05	133	38	93	6	10	47,25
51.350.1006-51.350.1060	10.06-10.6	133	38	93	6	10	49,15
51.350.1061-51.350.1131	10.61-11.31	142	41	102	6	10	49,15
51.350.1132-51.350.1180	11.32-11.8	142	41	102	6	10	64,35
51.350.1182-51.350.1250	11.82-12.5	151	44	111	6	10	64,35
51.350.1251-51.350.1320	12.51-13.2	151	44	111	8	10	69,35
51.350.1325-51.350.1375	13.25-13.75	160	47	115	8	12.5	139,35
51.350.1397-51.350.1400	13.97-14	160	47	117	8	12.5	124,75
51.350.1401-51.350.1405	14.01-14.05	162	50	117	8	12.5	124,75
51.350.1410-51.350.1500	14.1-15	162	50	117	8	12.5	148,55
51.350.1501-51.350.1510	15.01-15.1	170	52	125	8	12.5	148,55
51.350.1515-51.350.1590	15.15-15.9	170	52	125	8	12.5	195,20
51.350.1597-51.350.1600	15.97-16.00	170	52	125	8	12.5	148,55
51.350.1601-51.350.1605	16.01-16.05	175	54	130	8	14	148,55
51.350.1610-51.350.1699	16.1-16.99	175	54	130	8	14	182,35
51.350.1701-51.350.1800	17.01-18	182	56	137	8	14	182,35
51.350.1801-51.350.1900	18.01-19	189	58	141	8	16	182,35
51.350.1901-51.350.2005	19.01-20.05	195	60	147	8	16	182,35
51.350.2010-51.350.2020	20.1-20.2	195	60	147	8	16	220,60

> 51.520 Phantom

NL HSS-E Machineruimer vorm B H7 MK
 FR Alésoir machine HSS-E forme B H7 MK
 ES Escariador máquina HSS-E forma B H7 MK
 DE HSS-E Maschinenreibahlen form B H7 MK
 EN HSS-E Machine Chucking Reamer form B H7 MK



HSS-E	DIN 208-B	DIN 228-B	H7
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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	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	97,55
51.520.0500	5	MK 1	133	26	67	6	83,50
51.520.0600	6	MK 1	138	28	72	6	79,75
51.520.0700	7	MK 1	150	31	84	6	81,95
51.520.0800	8	MK 1	156	33	90	6	81,95
51.520.0900	9	MK 1	162	36	96	6	89,20
51.520.1000	10	MK 1	168	38	102	6	74,05
51.520.1050	10.5	MK 1	168	41	109	6	102,55
51.520.1100	11	MK 1	175	41	109	6	78,50
51.520.1150	11.5	MK 1	175	41	109	6	102,55
51.520.1200	12	MK 1	182	44	116	6	78,50
51.520.1250	12.5	MK 1	182	44	116	6	102,55
51.520.1300	13	MK 1	182	44	116	8	90,55
51.520.1350	13.5	MK 1	189	47	123	8	102,55
51.520.1400	14	MK 1	189	47	123	8	90,55
51.520.1450	14.5	MK 2	204	50	124	8	120,60
51.520.1500	15	MK 2	204	50	124	8	103,50
51.520.1550	15.5	MK 2	210	52	130	8	126,65
51.520.1600	16	MK 2	210	52	130	8	106,40
51.520.1650	16.5	MK 2	214	54	134	8	144,65
51.520.1700	17	MK 2	214	54	134	8	112,40

Ref.	d1	d2	l1	l2	l3	z	€
51.520.1750	17.5	MK 2	219	56	139	8	144,65
51.520.1800	18	MK 2	219	56	139	8	120,60
51.520.1850	18.5	MK 2	223	58	143	8	156,80
51.520.1900	19	MK 2	223	58	143	8	126,65
51.520.1950	19.5	MK 2	228	60	148	8	156,80
51.520.2000	20	MK 2	228	60	148	8	126,65
51.520.2050	20.5	MK 2	232	62	152	8	180,90
51.520.2100	21	MK 2	232	62	152	8	160,55
51.520.2150	21.5	MK 2	237	64	157	8	180,90
51.520.2200	22	MK 2	237	64	157	8	160,55
51.520.2250	22.5	MK 2	241	66	161	8	180,90
51.520.2300	23	MK 2	241	66	161	8	180,90
51.520.2400	24	MK 3	268	68	168	8	180,90
51.520.2500	25	MK 3	268	68	168	8	180,90
51.520.2600	26	MK 3	273	70	173	10	211,05
51.520.2700	27	MK 3	277	71	177	10	223,15
51.520.2800	28	MK 3	277	71	177	10	223,15
51.520.2900	29	MK 3	281	73	181	10	241,25
51.520.3000	30	MK 3	281	73	181	10	241,25
51.520.3100	31	MK 3	285	77	193	10	316,00
51.520.3200	32	MK 4	317	77	193	10	339,00



> 51.520

Phantom

Ref.	d1	d2	l1	l2	l3	z	€
51.520.3300	33	MK 4	317	77	193	10	344,00
51.520.3400	34	MK 4	321	78	197	10	344,00
51.520.3500	35	MK 4	321	78	197	10	344,00
51.520.3600	36	MK 4	325	79	201	10	423,00
51.520.3700	37	MK 4	325	79	201	10	423,00
51.520.3800	38	MK 4	329	81	205	10	423,00
51.520.3900	39	MK 4	329	81	205	12	423,00
51.520.4000	40	MK 4	329	81	205	12	423,00
51.520.4100	41	MK 4	333	82	209	12	573,00

Ref.	d1	d2	l1	l2	l3	z	€
51.520.4200	42	MK 4	333	82	209	12	573,00
51.520.4300	43	MK 4	336	83	212	12	573,00
51.520.4400	44	MK 4	336	83	212	12	573,00
51.520.4500	45	MK 4	336	83	212	12	573,00
51.520.4600	46	MK 4	340	84	216	12	695,00
51.520.4700	47	MK 4	340	84	216	12	695,00
51.520.4800	48	MK 4	344	86	220	12	724,00
51.520.4900	49	MK 4	344	86	220	12	724,00
51.520.5000	50	MK 4	344	86	220	12	724,00



NL Productvergelijker op phantom.eu
FR Comparateur de produits sur Phantom.eu
ES Comparador de productos en phantom.eu
DE Produktvergleich auf phantom.eu
EN Product comparator on phantom.eu

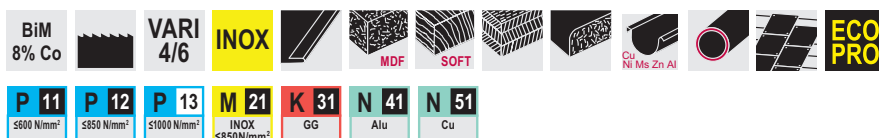
Watch me



www.phantom.eu

> 61.090 INTERNATIONAL TOOLS

NL ECO PRO HSS-Co 8% Bi-Metaal Gatzaag
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



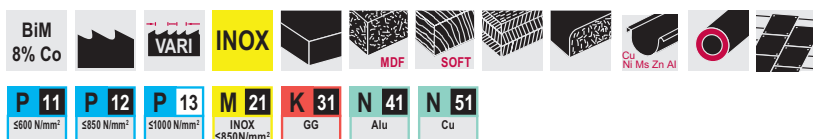
Ref.	d1	€
61.090.0014	14	6,50
61.090.0016	16	7,00
61.090.0017	17	7,00
61.090.0019	19	7,00
61.090.0020	20	7,00
61.090.0021	21	7,00
61.090.0022	22	7,00
61.090.0024	24	7,50
61.090.0025	25	8,50
61.090.0027	27	8,50
61.090.0029	29	9,00
61.090.0030	30	9,00
61.090.0032	32	9,00
61.090.0033	33	9,00
61.090.0035	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 Gatzaag
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	10,72
61.105.0016	16	10,98
61.105.0017	17	10,98
61.105.0018	18	11,51
61.105.0019	19	11,51
61.105.0020	20	11,51
61.105.0021	21	11,51
61.105.0022	22	11,51
61.105.0024	24	11,51
61.105.0025	25	13,08
61.105.0027	27	13,08
61.105.0028	28	13,60
61.105.0029	29	13,60
61.105.0030	30	13,60
61.105.0032	32	14,64
61.105.0033	33	14,64
61.105.0034	34	14,64
61.105.0035	35	15,48
61.105.0037	37	16,21
61.105.0038	38	16,21
61.105.0040	40	16,74

Ref.	d1	€
61.105.0041	41	16,74
61.105.0043	43	17,78
61.105.0044	44	17,78
61.105.0046	46	18,31
61.105.0048	48	18,83
61.105.0049	49	19,35
61.105.0050	50	19,35
61.105.0051	51	19,35
61.105.0052	52	20,40
61.105.0054	54	20,92
61.105.0056	56	21,44
61.105.0057	57	21,44
61.105.0059	59	21,97
61.105.0060	60	21,97
61.105.0061	61	21,97
61.105.0064	64	24,58
61.105.0065	65	25,10
61.105.0067	67	25,65
61.105.0068	68	26,15
61.105.0070	70	26,15
61.105.0073	73	27,20

Ref.	d1	€
61.105.0076	76	29,80
61.105.0079	79	30,35
61.105.0083	83	30,85
61.105.0086	86	31,40
61.105.0089	89	31,90
61.105.0090	90	32,45
61.105.0092	92	32,45
61.105.0095	95	36,60
61.105.0098	98	37,15
61.105.0100	100	37,65
61.105.0102	102	38,70
61.105.0105	105	39,75
61.105.0108	108	40,80
61.105.0111	111	41,85
61.105.0114	114	43,40
61.105.0121	121	45,50
61.105.0127	127	48,65
61.105.0133	133	51,80
61.105.0140	140	52,80
61.105.0146	146	55,95
61.105.0152	152	57,55



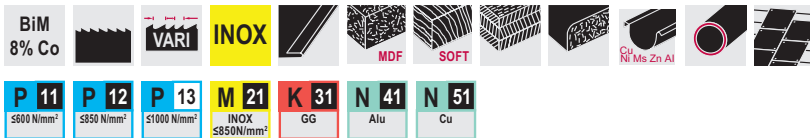
NL Gatzaag keuzehulp
FR Guide de sélection de scie-cloche
ES Guía de selección de coronas
DE Auswahlhilfe für Lochsagen
EN Hole saw selection guide



www.phantom.eu

> 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	10,72
61.110.0016	16	10,98
61.110.0017	17	10,98
61.110.0019	19	11,51
61.110.0020	20	11,51
61.110.0021	21	11,51
61.110.0022	22	11,51
61.110.0024	24	11,51
61.110.0025	25	13,08
61.110.0027	27	13,08
61.110.0030	30	13,60
61.110.0032	32	14,64
61.110.0035	35	15,48
61.110.0038	38	16,21
61.110.0040	40	16,74
61.110.0044	44	17,78
61.110.0048	48	18,83

Ref.	d1	€
61.110.0051	51	19,35
61.110.0054	54	20,40
61.110.0057	57	21,44
61.110.0060	60	21,97
61.110.0064	64	24,58
61.110.0067	67	25,65
61.110.0068	68	26,15
61.110.0070	70	26,15
61.110.0073	73	27,20
61.110.0076	76	29,80
61.110.0079	79	30,35
61.110.0083	83	30,85
61.110.0086	86	31,40
61.110.0089	89	31,90
61.110.0090	90	32,45
61.110.0092	92	32,45
61.110.0095	95	36,60

Ref.	d1	€
61.110.0098	98	37,15
61.110.0100	100	37,65
61.110.0102	102	38,70
61.110.0105	105	39,75
61.110.0108	108	40,80
61.110.0111	111	41,85
61.110.0114	114	43,40
61.110.0121	121	45,50
61.110.0127	127	48,65
61.110.0133	133	51,80
61.110.0140	140	52,80
61.110.0152	152	57,55
61.110.0160	160	73,20
61.110.0168	168	77,40
61.110.0177	177	82,65
61.110.0210	210	98,30



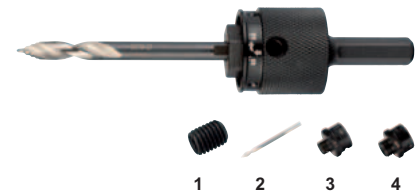
NL Gatzaag keuzehulp
FR Guide de sélection de scie-cloche
ES Guía de selección de coronas
DE Auswahlhilfe für Lochsagen
EN Hole saw selection guide



www.phantom.eu

> 61.135 INTERNATIONAL TOOLS

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



Ref.	Ø	d2	1 incl.	2 incl.	3 incl.	4 incl.	€
61.135.1432	14-210 mm	11/32"(8,7mm)	61.160.9566	61.148.0900	61.137.1401	61.137.3201	28,50

> 61.137 INTERNATIONAL TOOLS

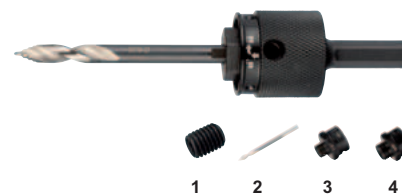
NL ECO PRO Universele Quick-Change adapter
FR Adaptateur Quick Change universel ECO PRO
ES Adaptador universal de cambio rápido ECO PRO
DE ECO PRO Universeller Schnellwechseladapter
EN ECO PRO Universal Quick-Change adapter



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

> 61.140 Phantom

NL Universele Quick-Change Houder
FR Système de changement rapide 'Quick Change'
ES Husillo de cambio rápido
DE Universal Schnellwechselhalter
EN Universal Quick-Change holder



8,7mm
11/32"

Ref.	Ø	d2	1 incl.	2 incl.	3 incl.	4 incl.	€
61.140.1432	14-210 mm	11/32"(8,7mm)	61.160.9566	61.180.0900	61.142.1401	61.142.3201	28,50

> 61.142 Phantom

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



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



NL Quick-Change snelwisselsysteem voor gatzagen
FR Système de changement rapide 'Quick Change'
ES Quick-Change Husillo de cambio rápido
DE Quick-Change Universal Schnellwechselhalter
EN Universal Quick-Change holder for holesaws

Watch me



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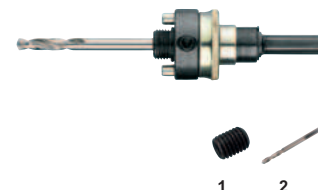
> 61.145 INTERNATIONAL TOOLS

NL ECO PRO Houder voor Gatzag 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 Lochsäge 61.090
EN ECO PRO Hole saw Arbor 61.090

11mm
7/16"

8,7mm
11/32"

ECO PRO

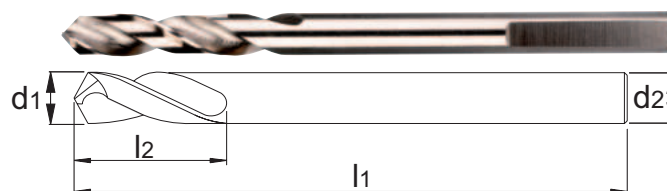


Ref.	Ø	d2	1 incl.	2 incl.	€
61.145.0201	32-152 mm	7/16"(11mm)	61.160.9532	61.147.0600	15,80

Ref.	Ø	d2	1 incl.	2 incl.	€
61.145.0500	14-30 mm	11/32"(8,7mm)	61.160.9514	61.147.0600	9,80

> 61.147 INTERNATIONAL TOOLS

NL ECO PRO Centreerboor voor Gatzag 61.090
FR Foret pilote ECO PRO pour Scies cloches 61.090
ES Broca guía ECO PRO para la Corona perforadora 61.090
DE ECO PRO Zentrierbohrer für Lochsäge 61.090
EN ECO PRO Centredrill for 61.090



HSS-E



ECO PRO

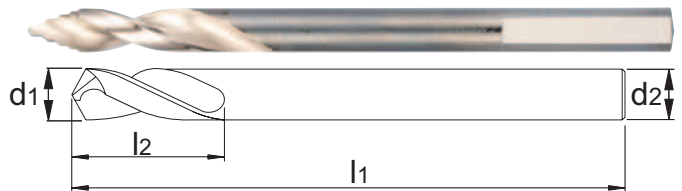
Ref.	Type	d1	l1	€
61.147.0600	HSS-E	6.35	90	5,85

> 61.148 INTERNATIONAL TOOLS

- NL ECO PRO Centreerboor, Step-point voor Universele Quick-Change Houder 61.135
 FR Foret pilote, Step-point ECO PRO pour système de changement rapide 'Quick Change' 61.135
 ES Broca guía, Step-point ECO PRO para Husillo de cambio rápido 61.135
 DE ECO PRO Zentrierbohrer, Step-point für Universal Schnellwechselhalter 61.135
 EN ECO PRO Centredrill, Step-point for Universal Quick-Change holder 61.135

HSS

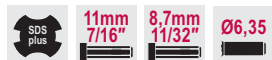
OX.



Ref.	Type	d1	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 Lochsäge 61.105 und 61.110
 EN Hole saw Arbor 61.105 and 61.110

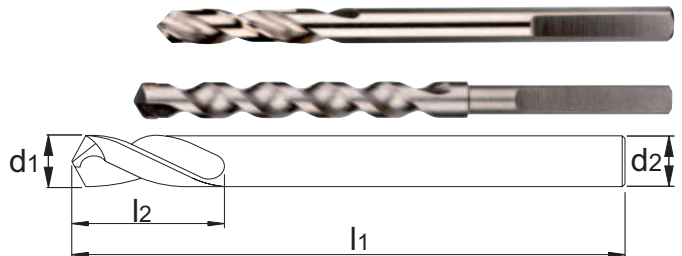


Ref.	Ø	d2	1 incl.	2 incl.	€
61.150.0100	14-30 mm	7/16"(11mm)	61.160.9514	61.170.0600	10,50
61.150.0201	32-210 mm	7/16"(11mm)	61.160.9532	61.170.0600	17,50
61.150.0400	14-30 mm	1/4"(6,35mm)	61.160.9514	61.170.0601	6,25
61.150.0500	14-30 mm	11/32"(8,7mm)	61.160.9514	61.170.0600	10,80

Ref.	Ø	d2	1 incl.	2 incl.	€
61.150.0601	32-210 mm	11/32"(8,7mm)	61.160.9532	61.170.0600	17,50
61.150.0800	14-30 mm	SDS+	61.160.9514	61.170.0600	12,60
61.150.0901	32-210 mm	SDS+	61.160.9532	61.170.0600	20,50

> 61.170 Phantom

- NL Centreerboor voor Gatzaag 61.105, 61.110 en 61.130
 FR Foret pilote pour Scies cloches 61.105, 61.110 et 61.130
 ES Broca guía para la Corona perforadora 61.105, 61.110 y 61.130
 DE Zentrierbohrer für Lochsäge 61.105, 61.110 und 61.130
 EN Centredrill for 61.105, 61.110 and 61.130



HSS-E HM-TIP

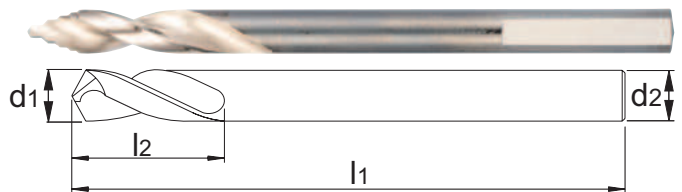
Ref.	Type	d1	l1	61.XXX	€
61.170.0600	HSS-E	6.35	90	61.150	6,50
61.170.0601	HSS-E	6.35	115	61.150.0400	5,79
61.170.0602	HSS-E	6.35	110	61.151	5,56
61.170.0603	Carbide Tipped	6.35	110	61.151	5,00

> 61.180 Phantom

- NL Centreerboor, Step-point voor Universele Quick-Change Houder 61.140
 FR Foret pilote, Step-point pour système de changement rapide 'Quick Change' 61.140
 ES Broca guía, Step-point para Husillo de cambio rápido 61.140
 DE Zentrierbohrer, Step-point für Universal Schnellwechselhalter 61.140
 EN Centredrill, Step-point for Universal Quick-Change holder 61.140

HSS

OX.



Ref.	Type	d1	l1	€
61.180.0900	HSS	6.35	90	6,50

> 61.630 Phantom

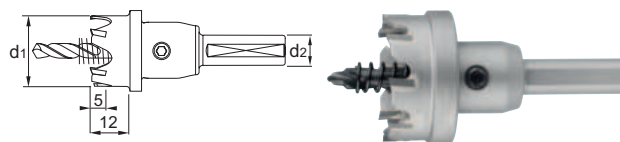
NL HM-tip Gatfrees korte uitvoering 12 mm, materiaaldikte <5 mm

FR Scie trépan à plaque de carbure version courte 12 mm, épaisseur <5 mm

ES Corona fresa con punta de carburo versión corto 12 mm, espesor <5 mm

DE Hartmetallbestückt Lochfräser kurze Ausführung 12 mm, Materialdicke <5 mm

EN Carbide Tipped Hole saw short series 12 mm, 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
≤800 N/mm²	≤850 N/mm²	<1000 N/mm²	<1400 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	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
61.630.0940	94	13	14	83,95
61.630.0960	96	13	14	89,40

> 61.670 Phantom

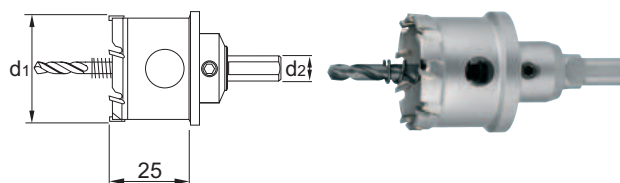
NL HM-tip Gatfrees diepgat uitvoering 25 mm, materiaaldikte <12 mm

FR Scie trépan à plaque de carbure profondeur de coupe 25 mm, épaisseur <12 mm

ES Corona fresa con punta de carburo profundidad de corte 25 mm, espesor <12 mm

DE Hartmetallbestückt 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
≤800 N/mm²	≤850 N/mm²	<1000 N/mm²	<1400 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	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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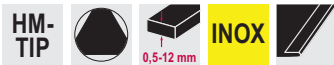
Ref.	d1	d2	z	€
61.670.0016	16	10	6	52,65
61.670.0017	17	10	6	52,65
61.670.0018	18	10	6	52,65
61.670.0019	19	10	6	52,65
61.670.0020	20	10	6	52,65
61.670.0021	21	10	6	57,05
61.670.0022	22	10	6	57,05
61.670.0023	23	10	6	57,05
61.670.0024	24	10	6	57,05
61.670.0025	25	10	6	57,05
61.670.0026	26	10	6	62,75
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
61.670.0039	39	10	6	81,10

Ref.	d1	d2	z	€
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
61.670.0063	63	10	8	148,70
61.670.0064	64	10	8	148,70

Ref.	d1	d2	z	€
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
61.670.0069	69	10	8	118,35
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 Gatfrees 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 con punta de carburo profundidad de corte 50 mm, espesor <12 mm
 DE Hartmetallbestückt Lochfräser lange Tiefloch-Ausführung 50 mm, Materialdicke <12 mm
 EN Carbide Tipped Hole saw long deep hole version 50 mm, thickness <12 mm



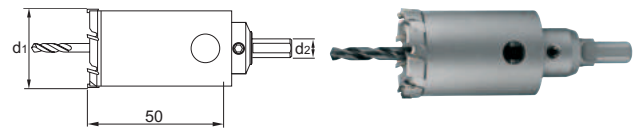
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 42	N 52	N 62
≤800 N/mm²	≤850 N/mm²	<1000 N/mm²	<1400 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Alu Si>10%	CuAlFe	GFK/CFK

36	34	30	25	20	10	60	40	90	35	30
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Ref.	d1	d2	z	€
61.680.0020	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	P 12	P 13	K 31	N 41	N 42	N 51	N 61
≤800 N/mm²	≤850 N/mm²	<1000 N/mm²	GG	Alu	Alu Si>10%	Cu	PVC

25	20	13	18	38	32	22	17
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Ref.	d1	Pin	€
62.100.1200	12	62.300.0026	26,65
62.100.1300	13	62.300.0026	26,65
62.100.1400	14	62.300.0026	27,95
62.100.1500	15	62.300.0026	27,95
62.100.1600	16	62.300.0026	29,10
62.100.1700	17	62.300.0026	29,10
62.100.1800	18	62.300.0026	30,25
62.100.1900	19	62.300.0026	30,25
62.100.2000	20	62.300.0026	32,40
62.100.2100	21	62.300.0026	32,40
62.100.2200	22	62.300.0026	38,50
62.100.2300	23	62.300.0026	38,50
62.100.2400	24	62.300.0026	42,55
62.100.2500	25	62.300.0026	42,55
62.100.2600	26	62.300.0026	45,40
62.100.2700	27	62.300.0026	45,40
62.100.2800	28	62.300.0026	48,10
62.100.2900	29	62.300.0026	48,10

Ref.	d1	Pin	€
62.100.3000	30	62.300.0026	53,25
62.100.3100	31	62.300.0026	53,25
62.100.3200	32	62.300.0026	58,55
62.100.3300	33	62.300.0026	58,55
62.100.3400	34	62.300.0026	62,85
62.100.3500	35	62.300.0026	62,85
62.100.3600	36	62.300.0026	65,80
62.100.3700	37	62.300.0026	65,80
62.100.3800	38	62.300.0026	70,20
62.100.3900	39	62.300.0026	70,20
62.100.4000	40	62.300.0026	77,50
62.100.4100	41	62.300.0026	77,50
62.100.4200	42	62.300.0026	85,85
62.100.4300	43	62.300.0026	85,85
62.100.4400	44	62.300.0026	92,60
62.100.4500	45	62.300.0026	92,60
62.100.4600	46	62.300.0026	97,55
62.100.4700	47	62.300.0026	97,55

Ref.	d1	Pin	€
62.100.4800	48	62.300.0026	103,10
62.100.4900	49	62.300.0026	103,10
62.100.5000	50	62.300.0026	110,20
62.100.5100	51	62.300.0026	110,20
62.100.5200	52	62.300.0026	120,30
62.100.5300	53	62.300.0026	124,20
62.100.5400	54	62.300.0026	128,00
62.100.5500	55	62.300.0026	131,15
62.100.5600	56	62.300.0026	135,90
62.100.5700	57	62.300.0026	141,95
62.100.5800	58	62.300.0026	145,45
62.100.5900	59	62.300.0026	150,00
62.100.6000	60	62.300.0026	154,60
62.100.6100	61	62.300.0026	169,95
62.100.6200	62	62.300.0026	175,55
62.100.6300	63	62.300.0026	181,15
62.100.6400	64	62.300.0026	186,10
62.100.6500	65	62.300.0026	191,00



- 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



www.phantom.eu

> 62.122 Phantom

NL HSS-EX Kernboor genitreed, snijdiepte 30 mm
 FR Fraise à carotter HSS-EX nitrurée, profondeur de coupe 30 mm
 ES Fresa hueca HSS-EX nitrurada, profundidad de corte 30 mm
 DE HSS-EX Kernbohr nitriert, Schnittiefe 30 mm
 EN HSS-EX Annular Cutter nitrided, cutting depth 30 mm



P 11 ≤500 N/mm²	P 12 ≤550 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 GG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC
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31	18	16	9	10	4	20	16	38	40	36	36	22
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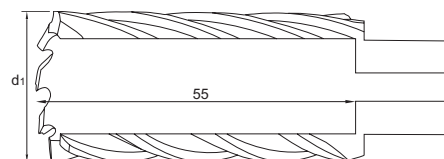
Ref.	d1	Pin	€
62.122.1200	12	62.300.0026	28,80
62.122.1300	13	62.300.0026	28,80
62.122.1400	14	62.300.0026	30,25
62.122.1500	15	62.300.0026	30,25
62.122.1600	16	62.300.0026	31,55
62.122.1700	17	62.300.0026	31,55
62.122.1800	18	62.300.0026	32,65
62.122.1900	19	62.300.0026	32,65
62.122.2000	20	62.300.0026	35,00
62.122.2100	21	62.300.0026	35,00
62.122.2200	22	62.300.0026	41,60
62.122.2300	23	62.300.0026	41,60
62.122.2400	24	62.300.0026	45,95
62.122.2500	25	62.300.0026	45,95
62.122.2600	26	62.300.0026	49,15
62.122.2700	27	62.300.0026	49,15
62.122.2800	28	62.300.0026	52,00
62.122.2900	29	62.300.0026	52,00

Ref.	d1	Pin	€
62.122.3000	30	62.300.0026	57,60
62.122.3100	31	62.300.0026	57,60
62.122.3200	32	62.300.0026	63,30
62.122.3300	33	62.300.0026	63,30
62.122.3400	34	62.300.0026	67,95
62.122.3500	35	62.300.0026	67,95
62.122.3600	36	62.300.0026	71,20
62.122.3700	37	62.300.0026	71,20
62.122.3800	38	62.300.0026	75,85
62.122.3900	39	62.300.0026	75,85
62.122.4000	40	62.300.0026	83,80
62.122.4100	41	62.300.0026	83,80
62.122.4200	42	62.300.0026	92,80
62.122.4300	43	62.300.0026	92,80
62.122.4400	44	62.300.0026	100,10
62.122.4500	45	62.300.0026	100,10
62.122.4600	46	62.300.0026	105,55
62.122.4700	47	62.300.0026	105,55

Ref.	d1	Pin	€
62.122.4800	48	62.300.0026	111,45
62.122.4900	49	62.300.0026	111,45
62.122.5000	50	62.300.0026	119,15
62.122.5100	51	62.300.0026	119,15
62.122.5200	52	62.300.0026	130,10
62.122.5300	53	62.300.0026	134,30
62.122.5400	54	62.300.0026	138,40
62.122.5500	55	62.300.0026	141,75
62.122.5600	56	62.300.0026	146,90
62.122.5700	57	62.300.0026	153,45
62.122.5800	58	62.300.0026	157,25
62.122.5900	59	62.300.0026	162,20
62.122.6000	60	62.300.0026	167,10
62.122.6100	61	62.300.0026	183,80
62.122.6200	62	62.300.0026	189,80
62.122.6300	63	62.300.0026	195,85
62.122.6400	64	62.300.0026	201,25
62.122.6500	65	62.300.0026	206,50

> 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 ≤500 N/mm²	P 12 ≤550 N/mm²	P 13 ≤1000 N/mm²	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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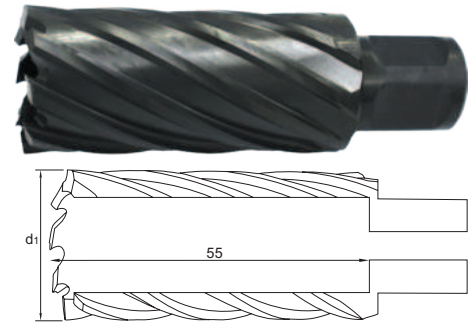
Ref.	d1	Pin	€
62.150.1200	12	62.300.0050	34,70
62.150.1300	13	62.300.0050	34,70
62.150.1400	14	62.300.0050	36,40
62.150.1500	15	62.300.0050	36,40
62.150.1600	16	62.300.0050	37,85
62.150.1700	17	62.300.0050	37,85
62.150.1800	18	62.300.0050	39,25
62.150.1900	19	62.300.0050	39,25
62.150.2000	20	62.300.0050	42,10
62.150.2100	21	62.300.0050	42,10
62.150.2200	22	62.300.0050	50,00
62.150.2300	23	62.300.0050	50,00
62.150.2400	24	62.300.0050	55,25
62.150.2500	25	62.300.0050	55,25
62.150.2600	26	62.300.0050	59,05
62.150.2700	27	62.300.0050	59,05
62.150.2800	28	62.300.0050	62,50
62.150.2900	29	62.300.0050	62,50

Ref.	d1	Pin	€
62.150.3000	30	62.300.0050	69,25
62.150.3100	31	62.300.0050	69,25
62.150.3200	32	62.300.0050	76,10
62.150.3300	33	62.300.0050	76,10
62.150.3400	34	62.300.0050	81,70
62.150.3500	35	62.300.0050	81,70
62.150.3600	36	62.300.0050	85,55
62.150.3700	37	62.300.0050	85,55
62.150.3800	38	62.300.0050	91,15
62.150.3900	39	62.300.0050	91,15
62.150.4000	40	62.300.0050	100,75
62.150.4100	41	62.300.0050	100,75
62.150.4200	42	62.300.0050	111,60
62.150.4300	43	62.300.0050	111,60
62.150.4400	44	62.300.0050	120,45
62.150.4500	45	62.300.0050	120,45
62.150.4600	46	62.300.0050	126,90
62.150.4700	47	62.300.0050	126,90

Ref.	d1	Pin	€
62.150.4800	48	62.300.0050	134,00
62.150.4900	49	62.300.0050	134,00
62.150.5000	50	62.300.0050	143,25
62.150.5100	51	62.300.0050	143,25
62.150.5200	52	62.300.0050	156,50
62.150.5300	53	62.300.0050	161,45
62.150.5400	54	62.300.0050	166,40
62.150.5500	55	62.300.0050	170,45
62.150.5600	56	62.300.0050	176,65
62.150.5700	57	62.300.0050	184,50
62.150.5800	58	62.300.0050	189,10
62.150.5900	59	62.300.0050	195,00
62.150.6000	60	62.300.0050	200,95
62.150.6100	61	62.300.0050	221,00
62.150.6200	62	62.300.0050	228,30
62.150.6300	63	62.300.0050	235,50
62.150.6400	64	62.300.0050	241,90
62.150.6500	65	62.300.0050	248,25

> 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	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 ≤950N/mm²	INOX >950N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	PVC

31	18	16	9	10	4	20	16	38	40	36	36	22
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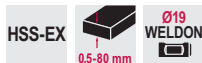
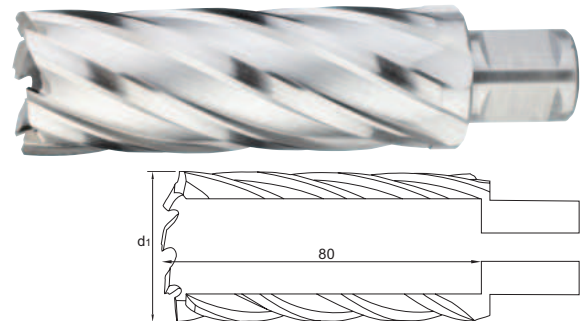
Ref.	d1	Pin	€
62.162.1200	12	62.300.0050	37,50
62.162.1300	13	62.300.0050	37,50
62.162.1400	14	62.300.0050	39,35
62.162.1450	14.5	62.300.0050	52,60
62.162.1500	15	62.300.0050	39,35
62.162.1550	15.5	62.300.0050	54,60
62.162.1600	16	62.300.0050	40,90
62.162.1650	16.5	62.300.0050	54,60
62.162.1700	17	62.300.0050	40,90
62.162.1750	17.5	62.300.0050	56,70
62.162.1800	18	62.300.0050	42,45
62.162.1850	18.5	62.300.0050	56,70
62.162.1900	19	62.300.0050	42,45
62.162.1950	19.5	62.300.0050	60,85
62.162.2000	20	62.300.0050	45,55
62.162.2050	20.5	62.300.0050	60,85
62.162.2100	21	62.300.0050	45,55
62.162.2200	22	62.300.0050	54,05
62.162.2300	23	62.300.0050	54,05
62.162.2400	24	62.300.0050	59,75
62.162.2500	25	62.300.0050	59,75

Ref.	d1	Pin	€
62.162.2600	26	62.300.0050	63,85
62.162.2700	27	62.300.0050	63,85
62.162.2800	28	62.300.0050	67,55
62.162.2900	29	62.300.0050	67,55
62.162.3000	30	62.300.0050	74,85
62.162.3100	31	62.300.0050	74,85
62.162.3200	32	62.300.0050	82,25
62.162.3300	33	62.300.0050	82,25
62.162.3400	34	62.300.0050	88,35
62.162.3500	35	62.300.0050	88,35
62.162.3600	36	62.300.0050	92,50
62.162.3700	37	62.300.0050	92,50
62.162.3800	38	62.300.0050	98,60
62.162.3900	39	62.300.0050	98,60
62.162.4000	40	62.300.0050	108,90
62.162.4100	41	62.300.0050	108,90
62.162.4200	42	62.300.0050	120,65
62.162.4300	43	62.300.0050	120,65
62.162.4400	44	62.300.0050	130,20
62.162.4500	45	62.300.0050	130,20
62.162.4600	46	62.300.0050	137,20

Ref.	d1	Pin	€
62.162.4700	47	62.300.0050	137,20
62.162.4800	48	62.300.0050	144,90
62.162.4900	49	62.300.0050	144,90
62.162.5000	50	62.300.0050	154,90
62.162.5100	51	62.300.0050	154,90
62.162.5200	52	62.300.0050	169,20
62.162.5300	53	62.300.0050	174,55
62.162.5400	54	62.300.0050	179,95
62.162.5500	55	62.300.0050	184,30
62.162.5600	56	62.300.0050	191,00
62.162.5700	57	62.300.0050	199,45
62.162.5800	58	62.300.0050	204,45
62.162.5900	59	62.300.0050	210,80
62.162.6000	60	62.300.0050	217,25
62.162.6100	61	62.300.0050	238,85
62.162.6200	62	62.300.0050	246,80
62.162.6300	63	62.300.0050	255,00
62.162.6400	64	62.300.0050	262,00
62.162.6500	65	62.300.0050	268,00

> 62.170 Phantom

NL HSS-EX Kernboor snijdiepte 80 mm
 FR Fraise à carotter HSS-EX profondeur de coupe 80 mm
 ES Fresa hueca HSS-EX profundidad de corte 80 mm
 DE HSS-EX Kernbohr Schnittiefe 80 mm
 EN HSS-EX Annular Cutter cutting depth 80 mm



P 11	P 12	P 13	K 31	N 41	N 42	N 51	N 61
≤800 N/mm²	≤850 N/mm²	<1000 N/mm²	GG	Alu	Alu Si>10%	Cu	PVC

25	20	13	18	38	32	22	17
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Ref.	d1	Pin	€
62.170.1800	18	62.300.0092	58,30
62.170.2000	20	62.300.0092	65,90
62.170.2200	22	62.300.0092	71,40

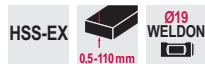
Ref.	d1	Pin	€
62.170.2400	24	62.300.0092	80,95
62.170.2600	26	62.300.0092	84,50
62.170.2800	28	62.300.0092	90,45

Ref.	d1	Pin	€
62.170.3000	30	62.300.0092	98,80

NIEUW NOUVEAU NUEVO NEU

> 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	P 12	P 13	K 31	N 41	N 42	N 51	N 61
≤800 N/mm ²	≤850 N/mm ²	<1000 N/mm ²	GG	Alu	Alu Si>10%	Cu	PVC
25	20	13	18	38	32	22	17

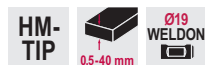
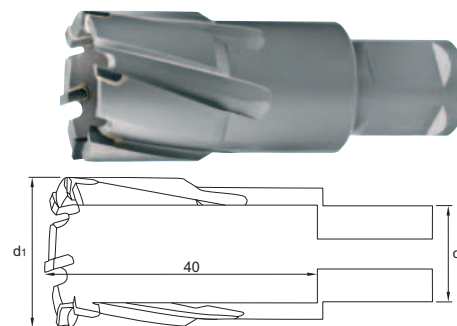
Ref.	d1	Pin	€
62.180.1800	18	62.300.0100	77,90
62.180.1900	19	62.300.0100	77,85
62.180.2000	20	62.300.0100	83,25
62.180.2100	21	62.300.0100	85,15
62.180.2200	22	62.300.0100	99,00
62.180.2400	24	62.300.0100	109,50

Ref.	d1	Pin	€
62.180.2500	25	62.300.0100	109,50
62.180.2600	26	62.300.0100	116,95
62.180.2700	27	62.300.0100	119,55
62.180.2800	28	62.300.0100	123,65
62.180.3000	30	62.300.0100	137,20
62.180.3200	32	62.300.0100	150,70

Ref.	d1	Pin	€
62.180.3400	34	62.300.0100	166,30
62.180.3500	35	62.300.0100	174,95
62.180.4000	40	62.300.0100	218,25
62.180.4500	45	62.300.0100	256,00
62.180.5000	50	62.300.0100	327,00

> 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 con punta de carburo profundidad de corte 40 mm
 DE Hartmetallbestückt 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
≤800 N/mm ²	≤850 N/mm ²	<1000 N/mm ²	<1400 N/mm ²	HRC	INOX ≤850N/mm ²	INOX >850N/mm ²	GG	GGG GTS-GTW	Alu Si>10%	CuAlFe	GFK/CFK
36	34	30	25	20	20	10	60	40	90	35	30

Ref.	d1	Pin	€
62.200.1200	12	62.300.0035	60,35
62.200.1300	13	62.300.0035	60,35
62.200.1400	14	62.300.0035	60,35
62.200.1500	15	62.300.0035	60,35
62.200.1600	16	62.300.0035	60,35
62.200.1700	17	62.300.0035	60,35
62.200.1800	18	62.300.0076	60,35
62.200.1900	19	62.300.0076	60,35
62.200.2000	20	62.300.0076	60,35
62.200.2100	21	62.300.0076	60,65

Ref.	d1	Pin	€
62.200.2200	22	62.300.0076	60,35
62.200.2300	23	62.300.0076	60,65
62.200.2400	24	62.300.0076	60,35
62.200.2500	25	62.300.0076	60,35
62.200.2600	26	62.300.0076	66,45
62.200.2700	27	62.300.0076	66,45
62.200.2800	28	62.300.0076	66,45
62.200.3000	30	62.300.0076	66,45
62.200.3100	31	62.300.0076	64,05
62.200.3200	32	62.300.0076	77,65

Ref.	d1	Pin	€
62.200.3500	35	62.300.0076	77,65
62.200.3600	36	62.300.0076	88,45
62.200.4000	40	62.300.0076	88,45
62.200.4500	45	62.300.0076	106,35
62.200.4700	47	62.300.0076	99,75
62.200.5000	50	62.300.0076	123,85
62.200.5500	55	62.300.0076	137,50
62.200.6000	60	62.300.0076	151,15



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?

Read me

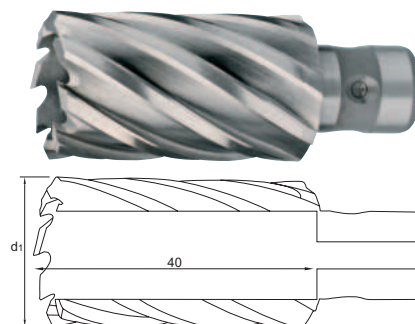


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> 62.250 Phantom

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, Schnittiefe 40 mm
 EN HSS-EX Annular Cutter with Fein QuickIN, cutting depth 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	Pin	€
62.250.1200	12	62.300.0035	34,50
62.250.1300	13	62.300.0035	34,50
62.250.1400	14	62.300.0035	34,90
62.250.1500	15	62.300.0035	34,90
62.250.1600	16	62.300.0035	36,90
62.250.1700	17	62.300.0035	36,90
62.250.1800	18	62.300.0035	38,30
62.250.1900	19	62.300.0035	38,30
62.250.2000	20	62.300.0035	41,15

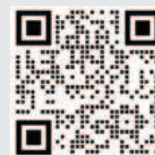
Ref.	d1	Pin	€
62.250.2100	21	62.300.0035	38,15
62.250.2200	22	62.300.0035	45,20
62.250.2300	23	62.300.0035	45,30
62.250.2400	24	62.300.0035	47,40
62.250.2500	25	62.300.0035	47,40
62.250.2600	26	62.300.0035	50,30
62.250.2700	27	62.300.0035	54,00
62.250.2800	28	62.300.0035	56,75
62.250.2900	29	62.300.0035	56,65

Ref.	d1	Pin	€
62.250.3000	30	62.300.0035	62,80
62.250.3200	32	62.300.0035	68,90
62.250.3500	35	62.300.0035	74,05
62.250.4000	40	62.300.0035	91,35
62.250.4500	45	62.300.0035	109,15
62.250.5000	50	62.300.0035	129,85
62.250.5500	55	62.300.0035	154,50
62.250.6000	60	62.300.0035	182,10



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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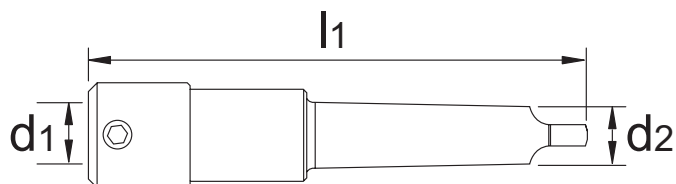
> 62.300 Phantom


NL Kernboor uitwerpstift
FR Tige d'éjection pour fraise à carotter
ES Expulsor para fresa hueca
DE Auswerferstift für Kernbohrer
EN Annular cutter pilot pin

Ref.	d1	l1	62.xxx	€
62.300.0025	6,35/5,3 mm	77	62.100, 62.104, 62.122	4,52
62.300.0026	6,35/5,3 mm	77	62.100, 62.104, 62.122	3,98
62.300.0035	6,35/5,3 mm	90	62.200(≤17,5 mm), 62.250, 62.270	4,78
62.300.0050	6,35/5,3 mm	102	62.150, 62.154, 62.162, 62.280	5,05
62.300.0054	6,35/5,3 mm	106	62.220(≤17,5 mm)	5,05
62.300.0056	6,35/5,3 mm	116	62.200(≤17,5 mm) + 62.300.9020	5,84
62.300.0058	6,35/5,3 mm	127	62.150, 62.154, 62.162, 62.220(≤17,5 mm) + 62.300.9020	6,38
62.300.0062	6,35/5,3 mm	160	62.240(≤17,5 mm)	10,52
62.300.0070	7,98 mm	77	62.130, 62.210	4,52
62.300.0076	7,98 mm	90	62.200(>17,5 mm)	5,05
62.300.0080	7,98 mm	103	62.220(18-60 mm)	6,91
62.300.0086	7,98 mm	118	62.200(>17,5 mm) + 62.300.9021	6,59
62.300.0090	7,98 mm	115	62.220(>60 mm) / 62.200(>17,5 mm) + 62.300.9021	6,64
62.300.0092	7,98 mm	130	62.170	8,23
62.300.0094	7,98 mm	145	62.200(>17,5 mm) + 62.300.9150	7,70
62.300.0100	7,98 mm	160	62.180, 62.240(>17,5 mm)	9,03
62.300.0102	7,98 mm	165	62.200(>17,5 mm) + 62.300.9175	9,03
62.300.0108	7,98 mm	180	62.220(>17,5 mm) + 62.300.9175	11,42
62.300.0120	7,98/6,35/5,3 mm	127	62.100, 62.104, 62.122 + 62.300.9150	7,70
62.300.0125	7,98/6,35/5,3 mm	140	62.200(≤17,5 mm) + 62.300.9150	8,50
62.300.0130	7,98/6,35/5,3 mm	153	62.150, 62.154, 62.162, 62.220(≤17,5 mm) + 62.300.9150	9,56
62.300.0135	7,98/6,35/5,3 mm	165	62.200(≤17,5 mm) + 62.300.9175	10,09
62.300.0140	7,98/6,35/5,3 mm	178	62.150, 62.154, 62.162, 62.220(≤17,5 mm) + 62.300.9175	11,16

> 62.310 Phantom

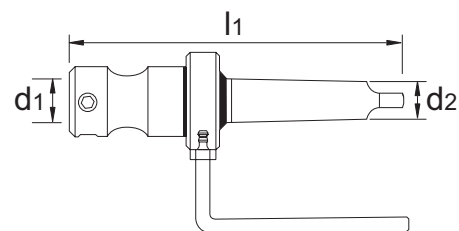
NL Kernboorhouder
FR Porte-fraise à carotter
ES Portaherramienta Fresa Hueca
DE Werkzeughalter für Kernbohrer
EN Annular cutter holder


NIEUW NOUVEAU NUEVO NEU

Ref.	d2	d1	l1	€
62.310.2195	MK 2	19 mm	162	118,10
62.310.3195	MK 3	19 mm	176	131,25
62.310.3325	MK 3	32 mm	172	73,20
62.310.4195	MK 4	19 mm	189	133,35
62.310.4325	MK 4	32 mm	204	84,75

> 62.320 Phantom

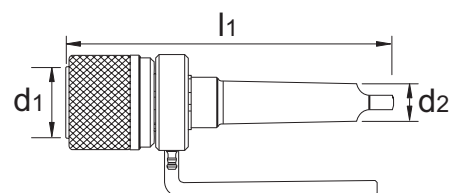
NL Kernboorhouder met interne koeling
FR Porte-fraise à carotter avec refroidissement
ES Portaherramienta Fresa Hueca con refrigeración interna
DE Werkzeughalter für Kernbohrer mit Innenkühlung
EN Annular cutter holder with internal coolant


NIEUW NOUVEAU NUEVO NEU

Ref.	d2	d1	l1	€
62.320.2195	MK 2	19 mm	168	179,05
62.320.3195	MK 3	19 mm	187	187,95
62.320.3325	MK 3	32 mm	202	116,55
62.320.4195	MK 4	19 mm	212	197,30

> 62.322 Phantom

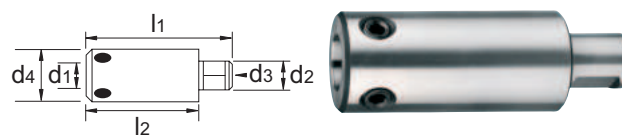
NL Kernboorhouder Quick-Change met interne koeling
FR Porte-fraise à carotter avec système de changement rapide avec refroidissement
ES Portaherramienta Fresa Hueca con sistema de cambio rapido con refrigeración interna
DE Schnellwechsel Werkzeughalter für Kernbohrer mit Innenkühlung
EN Annular cutter holder Quick-Change with internal coolant


NIEUW NOUVEAU NUEVO NEU

Ref.	d2	d1	l1	€
62.322.2195	MK 2	19 mm	168	151,45
62.322.3195	MK 3	19 mm	185	157,10

> 62.330 Phantom

NL Kernboor verlengstuk
FR Rallonge pour porte-fraise à carotter
ES Mango de extensión para fresa heuca
DE Kernbohrer verlängerung
EN Annular cutter extension

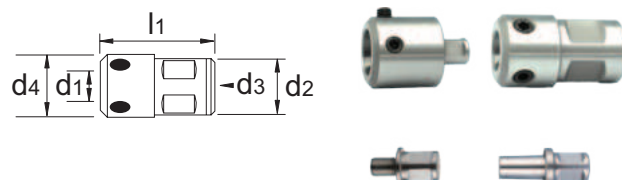


NIEUW NOUVEAU NUEVO NEU

Ref.	d2	d1	d4	l1	d3	Pin	€
62.330.1158	19 mm	19 mm	35	74	7.98	Ø7,98 + 50 mm	40,25
62.330.1178	19 mm	19 mm	35	99	7.98	Ø7,98 + 75 mm	44,10

> 62.340 Phantom

NL Kernboor adapter
FR Adaptateur pour porte-fraise à carotter
ES Adaptador para Portaherramienta Fresa Hueca
DE Adapter für Kernbohrer
EN Annular cutter adapter

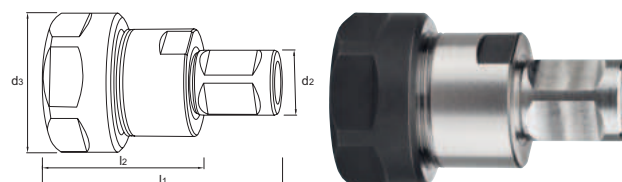


NIEUW NOUVEAU NUEVO NEU

Ref.	Image	d2	d1	d4	l1	d3	Pin	€
62.340.1328		19 mm	32 mm		73	7.98	Ø7,98 + 40 mm	39,60
62.340.1620		19 mm	1/2 - 20 UNF		43			27,05
62.340.1720		19 mm	B16		57			23,91
62.340.3148		32 mm	19 mm	35	63	7.98	Ø7,98 + 40 mm	41,45
62.340.4126		18 mm	19 mm	35	51	6.35	Ø6,35 + 25 mm	29,90
62.340.4128		18 mm	19 mm	35	51	7.98	Ø7,98 + 25 mm	29,90
62.340.5120		M18x6 P1,5	19 mm	35	43			34,55

> 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	19 mm	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

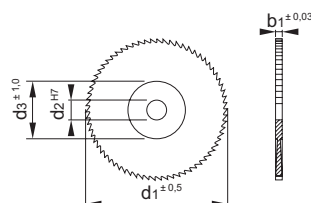


+GF+

P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 61
500 N/mm ²	550 N/mm ²	<1000 N/mm ²	51400 N/mm ²	INOX 5850 N/mm ²	INOX >850 N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	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
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Ref.	d1	b1	d2	d3	z	t	€
63.210.0612	63	1.2	16	36	100	2	37,90
63.210.0616	63	1.6	16	36	44	4,5	41,30
63.210.0617	63	1.6	16	36	64	3	41,30
63.210.0618	63	1.6	16	36	80	2,5	41,30
63.210.0716	68	1.6	16	42	44	4,75	44,95
63.210.0717	68	1.6	16	42	84	2,5	44,95
63.210.0718	68	1.6	16	42	72	3	44,95



> 63.400 Phantom

NL HSS Afkortzaag stoomontlaten
FR Fraise-scie à tronçonner HSS vaporisé
ES Fresa sierra circular tronzadora HSS vaporizada
DE HSS Trennsägeblätter dampfangelassen
EN HSS Circular Saw Blade steam oxide

HSS

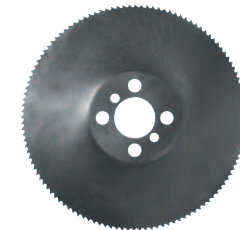
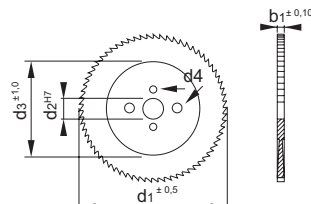
OX.

T≤4
C

P 11	P 12	P 13	K 31	K 32	N 41	N 42	N 51	N 61
500 N/mm ²	550 N/mm ²	<1000 N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	PVC

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	134,45
63.400.2016	200	1.8	32	90	160	4	2/8-45+2/11-63	134,45
63.400.2018	200	1.8	32	90	180	3,5	2/8-45+2/11-63	134,45
63.400.2126	225	1.2	32	100	264	2,5	2/8-45+2/11-63+2/9-50	186,00
63.400.2209	225	2	32	90	90	8	2/8-45+2/11-63+2/9-50	135,90
63.400.2212	225	2	32	90	120	6	2/8-45+2/11-63+2/9-50	135,90
63.400.2214	225	2	32	90	140	5	2/8-45+2/11-63+2/9-50	135,90
63.400.2218	225	2	32	90	180	4	2/8-45+2/11-63+2/9-50	135,90
63.400.2222	225	2	32	90	220	3	2/8-45+2/11-63+2/9-50	135,90
63.400.2312	225	2	40	90	120	6	2/8-55+4/11-63	135,90
63.400.2318	225	2	40	90	180	4	2/8-55+4/11-63	135,90
63.400.2326	225	2	40	90	220	3	2/8-55+4/11-63	135,90
63.400.2508	250	2	32	90	80	10	2/8-45+2/11-63+2/9-50	143,05
63.400.2510	250	2	32	90	100	8	2/8-45+2/11-63+2/9-50	143,05
63.400.2512	250	2	32	90	128	6	2/8-45+2/11-63+2/9-50	143,05
63.400.2516	250	2	32	90	160	5	2/8-45+2/11-63+2/9-50	143,05
63.400.2520	250	2	32	90	200	4	2/8-45+2/11-63+2/9-50	143,05
63.400.2525	250	2	32	90	250	3	2/8-45+2/11-63+2/9-50	143,05
63.400.2566	250	2,5	32	100	160	5	2/8-45+2/11-63+2/9-50	167,65
63.400.2570	250	2,5	32	100	200	4	2/8-45+2/11-63+2/9-50	167,65
63.400.2575	250	2,5	32	100	250	3	2/8-45+2/11-63+2/9-50	167,65
63.400.2608	250	2,5	40	100	80	10	2/8-55+4/12-64	167,65
63.400.2610	250	2,5	40	100	100	8	2/8-55+4/12-64	167,65
63.400.2612	250	2,5	40	100	128	6	2/8-55+4/12-64	167,65
63.400.2616	250	2,5	40	100	160	5	2/8-55+4/12-64	167,65
63.400.2620	250	2,5	40	100	200	4	2/8-55+4/12-64	167,65
63.400.2625	250	2,5	40	100	250	3	2/8-55+4/12-64	167,65
63.400.2709	275	2,5	32	100	90	10	2/8-45+2/11-63+2/12-75	188,70
63.400.2711	275	2,5	32	100	110	8	2/8-45+2/11-63+2/12-75	188,70
63.400.2714	275	2,5	32	100	140	6	2/8-45+2/11-63+2/12-75	188,70
63.400.2718	275	2,5	32	100	180	5	2/8-45+2/11-63+2/12-75	188,70
63.400.2722	275	2,5	32	100	220	4	2/8-45+2/11-63+2/12-75	188,70
63.400.2728	275	2,5	32	100	280	3	2/8-45+2/11-63+2/12-75	188,70
63.400.2809	275	2,5	40	100	90	10	2/8-55+4/12-64	188,70
63.400.2811	275	2,5	40	100	110	8	2/8-55+4/12-64	188,70
63.400.2814	275	2,5	40	100	140	6	2/8-55+4/12-64	188,70
63.400.2818	275	2,5	40	100	180	5	2/8-55+4/12-64	188,70
63.400.2822	275	2,5	40	100	220	4	2/8-55+4/12-64	188,70
63.400.2828	275	2,5	40	100	280	3	2/8-55+4/12-64	188,70



Ref.	d1	b1	d2	d3	z	t	d4	€
63.400.3009	300	2,5	32	100	90	10	2/8-45+4/11-63	233,05
63.400.3012	300	2,5	32	100	120	8	2/8-45+4/11-63	233,05
63.400.3016	300	2,5	32	100	160	6	2/8-45+4/11-63	233,05
63.400.3018	300	2,5	32	100	180	5	2/8-45+4/11-63	233,05
63.400.3020	300	2,5	32	100	200	4	2/8-45+4/11-63	233,05
63.400.3022	300	2,5	32	100	220	4	2/8-45+4/11-63	233,05
63.400.3030	300	2,5	32	100	300	3	2/8-45+4/11-63	233,05
63.400.3059	300	3	40	100	90	10	2/8-55+4/12-64	297,00
63.400.3062	300	3	40	100	120	8	2/8-55+4/12-64	297,00
63.400.3066	300	3	40	100	160	6	2/8-55+4/12-64	297,00
63.400.3068	300	3	40	100	180	5	2/8-55+4/12-64	297,00
63.400.3072	300	3	40	100	220	4	2/8-55+4/12-64	297,00
63.400.3080	300	3	40	100	300	3	2/8-55+4/12-64	297,00
63.400.3110	315	2,5	32	100	100	10	2/8-45+4/11-63	252,00
63.400.3112	315	2,5	32	100	120	8	2/8-45+4/11-63	252,00
63.400.3116	315	2,5	32	100	160	6	2/8-45+4/11-63	252,00
63.400.3120	315	2,5	32	100	200	5	2/8-45+4/11-63	252,00
63.400.3124	315	2,5	32	100	240	4	2/8-45+4/11-63	252,00
63.400.3130	315	2,5	32	100	300	3	2/8-45+4/11-63	252,00
63.400.3160	315	2,5	40	100	100	10	2/8-55+2/12-64	252,00
63.400.3162	315	2,5	40	100	120	8	2/8-55+4/12-64	252,00
63.400.3166	315	2,5	40	100	160	6	2/8-55+4/12-64	252,00
63.400.3170	315	2,5	40	100	200	5	2/8-55+4/12-64	252,00
63.400.3174	315	2,5	40	100	240	4	2/8-55+4/12-64	252,00
63.400.3180	315	2,5	40	100	300	3	2/8-55+4/12-64	252,00
63.400.3512	350	3	32	120	120	9	2/8-45+4/11-63	363,00
63.400.3514	350	3	32	120	140	8	2/8-45+4/11-63	363,00
63.400.3518	350	3	32	120	180	6	2/8-45+4/11-63	363,00
63.400.3522	350	3	32	120	220	5	2/8-45+4/11-63	363,00
63.400.3528	350	3	32	120	280	4	2/8-45+4/11-63	363,00
63.400.3535	350	3	32	120	350	3	2/8-45+4/11-63	363,00
63.400.3562	350	3	40	120	120	9	2/8-55+4/12-64	363,00
63.400.3564	350	3	40	120	140	8	2/8-55+4/12-64	363,00
63.400.3568	350	3	40	120	180	6	2/8-55+2/12-64	363,00
63.400.3572	350	3	40	120	220	5	2/8-55+2/12-64	363,00
63.400.3578	350	3	40	120	280	4	2/8-55+2/12-64	363,00
63.400.3585	350	3	40	120	350	3	2/8-55+4/12-64	363,00
63.400.3608	350	3	50	120	80	14	4/15-80+4/14-85	363,00
63.400.3612	350	3	50	120	120	9	4/15-80+4/14-85	363,00

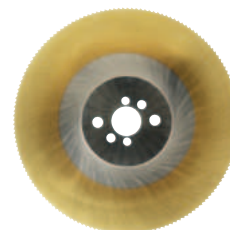
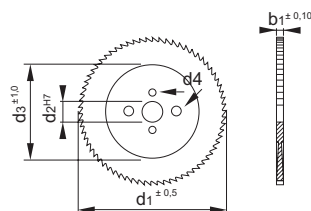
> 63.400 Phantom

Ref.	d1	b1	d2	d3	z	t	d4	€
63.400.3616	350	3	50	120	160	7	4/15-80+4/14-85	363,00
63.400.3622	350	3	50	120	220	5	4/15-80+4/14-85	363,00
63.400.3711	370	3	50	120	110	10	4/15-80+4/14-85	488,00
63.400.3716	370	3	50	120	160	7	4/15-80+4/14-85	488,00
63.400.3722	370	3	50	120	220	5	4/15-80+4/14-85	488,00

Ref.	d1	b1	d2	d3	z	t	d4	€
63.400.4008	400	3	50	120	80	16	4/15-80+4/14-85	501,00
63.400.4010	400	3	50	120	100	12	4/15-80+4/14-85	501,00
63.400.4012	400	3	50	120	120	10	4/15-80+4/14-85	501,00
63.400.4016	400	3	50	120	160	8	4/15-80+4/14-85	501,00
63.400.4020	400	3	50	120	200	6	4/15-80+4/14-85	501,00

> 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



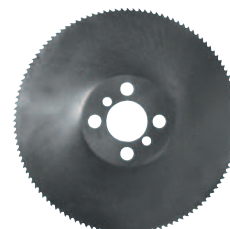
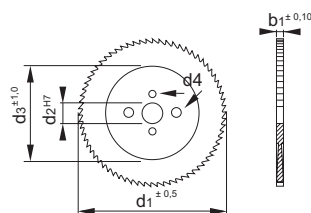
HSS	TiN	Ts4 BW	Ts5 C
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG
30-40	25-35	15-25	25-30
			20-25
			500-700
			500-700
			200-400
			200-600

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	175,95
63.401.2516	250	2	32	100	160	5	2/8-45+2/11-63+2/9-50	175,95
63.401.2520	250	2	32	100	200	4	2/8-45+2/11-63+2/9-50	175,95
63.401.2525	250	2	32	100	250	3	2/8-45+2/11-63+2/9-50	175,95
63.401.2566	250	2.5	32	100	160	5	2/8-45+2/11-63+2/9-50	193,65
63.401.2570	250	2.5	32	100	200	4	2/8-45+2/11-63+2/9-50	193,65
63.401.2714	275	2.5	32	100	140	6	2/8-45+2/11-63+2/12-75	224,70
63.401.2718	275	2.5	32	100	180	5	2/8-45+2/11-63+2/12-75	224,70
63.401.2722	275	2.5	32	100	220	4	2/8-45+2/11-63+2/12-75	224,70
63.401.2814	275	2.5	40	100	140	6	2/8-55+4/12-64	224,70
63.401.2818	275	2.5	40	100	180	5	2/8-55+4/12-64	224,70
63.401.2822	275	2.5	40	100	220	4	2/8-55+4/12-64	224,70

Ref.	d1	b1	d2	d3	z	t	d4	€
63.401.3016	300	2.5	32	100	160	6	2/8-45+4/11-63	268,00
63.401.3018	300	2.5	32	100	180	5	2/8-45+4/11-63	268,00
63.401.3022	300	2.5	32	100	220	4	2/8-45+4/11-63	268,00
63.401.3116	315	2.5	32	100	160	6	2/8-45+4/11-63	295,00
63.401.3120	315	2.5	32	100	200	5	2/8-45+4/11-63	295,00
63.401.3124	315	2.5	32	100	240	4	2/8-45+4/11-63	295,00
63.401.3166	315	2.5	40	100	160	6	2/8-55+4/12-64	295,00
63.401.3170	315	2.5	40	100	200	5	2/8-55+4/12-64	295,00
63.401.3174	315	2.5	40	100	240	4	2/8-55+4/12-64	295,00
63.401.3518	350	3	32	100	180	6	2/8-45+4/11-63	372,00
63.401.3522	350	3	32	100	220	5	2/8-45+4/11-63	372,00

> 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



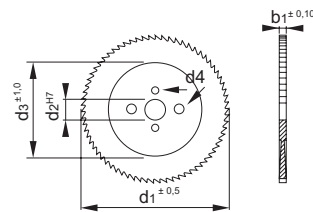
HSS-E	OX.	Ts4 BW	Ts5 C	INOX
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850N/mm²
30-40	25-35	15-25	15-20	10-15
				6-8
				25-30
				20-25
				500-700
				500-700
				200-400
				200-600

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	220,95
63.420.2222	225	2	32	90	220	3	2/8-45+2/11-63+2/9-50	220,95
63.420.2516	250	2	32	100	160	5	2/8-45+2/11-63+2/9-50	199,40
63.420.2520	250	2	32	100	200	4	2/8-45+2/11-63+2/9-50	199,40
63.420.2525	250	2	32	100	250	3	2/8-45+2/11-63+2/9-50	199,40
63.420.2714	275	2.5	32	100	140	6	2/8-45+2/11-63+2/12-75	265,00
63.420.2718	275	2.5	32	100	180	5	2/8-45+2/11-63+2/12-75	265,00
63.420.2722	275	2.5	32	100	220	4	2/8-45+2/11-63+2/12-75	265,00
63.420.2814	275	2.5	40	100	140	6	2/8-55+4/12-64	265,00
63.420.2818	275	2.5	40	100	180	5	2/8-55+4/12-64	265,00
63.420.2822	275	2.5	40	100	220	4	2/8-55+4/12-64	265,00
63.420.3018	300	2.5	32	100	180	5	2/8-45+4/11-63	319,00

Ref.	d1	b1	d2	d3	z	t	d4	€
63.420.3020	300	2.5	32	100	200	5	2/8-45+4/11-63	319,00
63.420.3022	300	2.5	32	100	220	4	2/8-45+4/11-63	319,00
63.420.3030	300	2.5	32	100	300	3	2/8-45+4/11-63	319,00
63.420.3116	315	2.5	32	100	160	6	2/8-45+4/11-63	351,00
63.420.3120	315	2.5	32	100	200	5	2/8-45+4/11-63	351,00
63.420.3124	315	2.5	32	100	240	4	2/8-45+4/11-63	351,00
63.420.3166	315	2.5	40	100	160	6	2/8-55+4/12-64	351,00
63.420.3170	315	2.5	40	100	200	5	2/8-55+4/12-64	351,00
63.420.3174	315	2.5	40	100	240	4	2/8-55+4/12-64	351,00
63.420.3518	350	3	32	120	180	6	2/8-45+4/11-63	593,00
63.420.3522	350	3	32	120	220	5	2/8-45+4/11-63	593,00
63.420.3528	350	3	32	120	280	4	2/8-45+4/11-63	593,00

> 63.424 Phantom

NL HSS-E Afkortzaag TiAIN
FR Fraise-scie à tronçonner HSS-E TiAIN
ES Fresa sierra circular tronzadora HSS-E TiAIN
DE HSS-E Trennsägeblätter TiAIN
EN HSS-E Circular Saw Blade TiAIN



HSS-E	TiAIN	TS4 BW	T≥5 C	INOX
P 11 5800 N/mm²	P 12 5850 N/mm²	P 13 <1000 N/mm²	P 14 51400 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 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	316,00
63.424.3022	300	2.5	32	100	220	4	2/8-45+4/11-63	378,00
63.424.3030	300	2.5	32	100	300	3	2/8-45+4/11-63	378,00
63.424.3116	315	2.5	32	100	160	6	2/8-45+2/11-63	414,00
63.424.3120	315	2.5	32	100	200	5	2/8-45+4/11-63	414,00
63.424.3124	315	2.5	32	100	240	4	2/8-45+4/11-63	414,00

Ref.	d1	b1	d2	d3	z	t	d4	€
63.424.3166	315	2.5	40	100	160	6	2/8-55+4/12-64	414,00
63.424.3170	315	2.5	40	100	200	5	2/8-55+4/12-64	414,00
63.424.3174	315	2.5	40	100	240	4	2/8-55+4/12-64	414,00
63.424.3518	350	3	32	120	180	6	2/8-45+4/11-63	523,00
63.424.3522	350	3	32	120	220	5	2/8-45+4/11-63	523,00

> 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



BiM HSS	5% Co	300mm 12"
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Ref.	TPI	t	€
64.150.1800	18	1,4	2,60
64.150.2400	24	1	2,60
64.150.3200	32	0,8	2,60

> 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

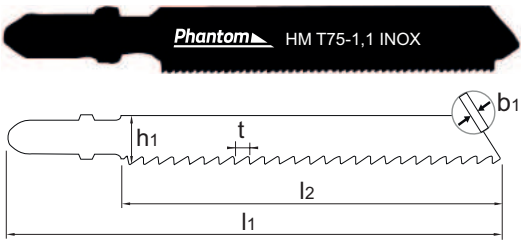


HSS	24 TPI	150KG	45°-90°	300mm 12"
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Ref.	Nr.	€
64.460.1001	1	42,00

> 64.500 Phantom

NL Decoupeerzaag
FR Lame de scie sauteuse
ES Hojas de sierra de calar
DE Stichsägeblätter
EN Jigsaw Blade



Ref.	Type	l1	l2	h1	b1	TPI	t	Image	1	2	3	4	5	6	7	8	9	€
64.500.0710	T75-0,9	75	50	8	1	28	0,9		BiM HSS	0,5-1,5 mm	INOX							12,71
64.500.0711	T75-1,1 HM INOX	75	50	9.5	1	24	1,1		HM	1,5-3 mm	INOX							37,70
64.500.0714	T75-1,2	75	50	8	1	21	1,2		BiM HSS	1-3 mm	INOX							12,71
64.500.0720	T75-2	75	50	8	1	12	2		BiM HSS	2,6-6 mm	INOX							12,71
64.500.0725	T75-2C	75	50	5.4	1.25	12	2		CV	2-15 mm	SOFT			MDF				6,47
64.500.0819	T80-1,9	80	55	8	1.27	13	1,9		BiM HSS	1,5-15 mm				ACRYL				16,43
64.500.1018	T100-1,2/2,5 UNI	100	75	8	1	10/21	1,2-2,5		BiM HSS	1,5-10 mm	INOX				UNI			15,88
64.500.1020	T100-2G	100	75	8	1.27	12	2		BiM HSS	2-30 mm					HPL	(180°)		18,05
64.500.1021	T100-2	100	75	8	1.27	12	2		BiM HSS	2-20 mm				ACRYL				18,17
64.500.1024	T100-2,5CG	100	75	8	1.27	10	2,5		CV	4-30 mm	SOFT				MDF			11,04
64.500.1025	T100-3	100	75	8	1.15	8	3		HSS	3-15 mm								11,72
64.500.1026	T100-2,5G	100	75	8	1.27	10	2,5		BiM HSS	3-30 mm					MDF			18,05
64.500.1027	T100-3C	100	75	6.2	1.15	8	3		HSS	3-15 mm								14,43
64.500.1028	T100-2,5NG	100	75	8	1.27	10	2,5		BiM HSS	3-45 mm						HPL		18,05
64.500.1042	T100-4G	100	75	8	1.27	6	4		BiM HSS	5-50 mm				SOFT		MDF		16,25
64.500.1150	T115-2,5/3,2G	115	90	8	1.45	8/10	2,5-3,2		CV	3-65 mm								20,18
64.500.1312	T132-1,2	132	110	8	1	21	1,2		BiM HSS	1-3 mm								19,06
64.500.1313	T132-1/1,6 UNI	132	110	8	1	16/25	1-1,6		BiM HSS	1,2-6 mm	INOX							20,75
64.500.1321	T132-1,8/2,5 UNI	132	110	8	1.27	10/14	1,8-2,5		BiM HSS	3-80 mm	INOX					UNI		20,75
64.500.1330	T132-2/4 UNI	132	110	8	1.27	6/12	2-4		BiM HSS	3-65 mm	INOX					UNI		19,86
64.500.1340	T132-4G	132	110	8	1.27	6	4		BiM HSS	5-80 mm				SOFT		MDF		19,86
64.500.1540	T150-4	150	130	8	1.25	6	4		CV	5-100 mm	SOFT				MDF			9,86
64.500.1950	T75-HM-Grit	75	50	8	1				HM	3-15 mm								6,47
64.500.2043	T100-4,3HM	100	75	8	1.25	6	4,3		HM	5-50 mm								76,25

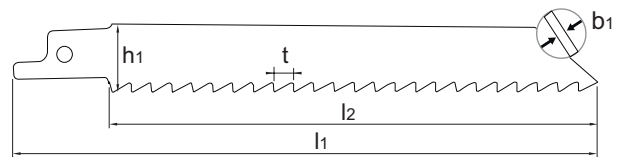


> 64.600

Phantom

NL Reciprozaag
FR Lame de scie sabre
ES Hojas de sierra de sable
DE Säbelsägeblätter
EN Sabre Saw Blade

Phantom BIM R230-1,8



Ref.	Type	l1	l2	h1	b1	TPI	t	Image	1	2	3	4	5	6	7	8	9	€
64.600.1510	R150-1	150	130	19	0.9	25	1		BiM 8% Co									21,35
64.600.1514	R150-1,4	150	130	19	0.9	18	1,4		BiM 8% Co									21,35
64.600.1518	R150-1,8	150	130	19	0.9	14	1,8		BiM 8% Co									21,35
64.600.1519	R150-1,8 90°	150	130	25.4	0.9	14	1,8		BiM 8% Co									32,30
64.600.1522	R150-1,8/2,5 UNI	150	130	19	1.27	10/14	1,8-2,5		BiM 8% Co									29,35
64.600.1525	R150-2,5	150	130	19	0.9	10	2,5		BiM 8% Co									21,35
64.600.1540	R150-4,2C	150	130	19	1.27	6	4,2		BiM 8% Co									26,85
64.600.2014	R200-1,4	200	180	19	0.9	18	1,4		BiM 8% Co									27,30
64.600.2018	R200-1,8	200	180	19	0.9	14	1,8		BiM 8% Co									27,30
64.600.2023	R200-1,8/2,5 UNI	200	180	19	1.27	10/14	1,8-2,5		BiM 8% Co									36,80
64.600.2025	R200-2,5	200	180	19	0.9	10	2,5		BiM 8% Co									27,30
64.600.2214	R230-1,4	230	210	19	0.9	18	1,4		BiM 8% Co									32,30
64.600.2218	R230-1,8	230	210	19	0.9	14	1,8		BiM 8% Co									31,10
64.600.2220	R230-2	230	210	19	1.27	12	2		BiM 8% Co									37,05
64.600.2221	R230-1,8/2,5 UNI	230	210	19	0.9	10/14	1,8-2,5		BiM 8% Co									33,35
64.600.2225	R230-2,5	230	210	19	0.9	10	2,5		BiM 8% Co									32,30
64.600.2232	R230-2,5/3,2 UNI	230	210	19	1.27	8/10	2,5-3,2		BiM 8% Co									38,70
64.600.2332	R230-2,5/3,2	230	210	19	1.57	8/10	2,5-3,2		BiM 8% Co									53,20
64.600.2342	R230-4,2C	230	210	19	1.27	6	4,2		BiM 8% Co									35,80
64.600.2356	R230-5/6,5	230	210	19	1.2	4/5	5-6,5		CV									33,10
64.600.3018	R300-1,8	300	280	19	0.9	14	1,8		BiM 8% Co									35,45
64.600.3021	R300-1,8/2,5 UNI	300	280	19	0.9	10/14	1,8-2,5		BiM 8% Co									43,05
64.600.3025	R300-2,5	300	280	19	0.9	10	2,5		BiM 8% Co									35,45
64.600.3032	R300-4,2C	300	280	19	1.27	6	4,2		BiM 8% Co									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



BiM HSS	HSS-E 8%	 VARI	 K 40°								
P 11 ≤800 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 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=5-8/"	z=6-10/"	z=8-12/"	z=10-14/"
13 x 0,65	15,40	11,85		66.450.07....	66.450.08....	66.450.09....
13 x 0,9	16,40	11,85		66.450.17....	66.450.18....	66.450.19....
20 x 0,9	16,95	13,25	66.450.26....	66.450.27....	66.450.28....	66.450.29....
27 x 0,9	17,80	14,00	66.450.36....	66.450.37....	66.450.38....	66.450.39....
34 x 1,1	22,10	14,50	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



BiM HSS	HSS-E 8%							
P 11 ≤800 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	N 41 Alu	N 42 Alu Si>10%
50-120	35-50	30-45	30-40	30-40	10-30	30-60	80-800	80-800

h1 x b1 (mm)	Price pr. Meter €	Welding costs €	z=2-3/"	z=3-4/"	z=4-6/"
20 x 0,9	16,95	13,25			66.460.25....
27 x 0,9	17,80	14,00	66.460.33....	66.460.34....	66.460.35....
34 x 1,1	22,10	14,50	66.460.53....	66.460.54....	66.460.55....
41 x 1,3	31,90	20,50	66.460.63....	66.460.64....	66.460.65....
54 x 1,6	45,85	32,60	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



BIM HSS	10% Co	VARI	10°				
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	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	24,95	14,00	66.580.44....	66.580.45....	66.580.46....
34 x 1,1	34,55	14,50	66.580.54....	66.580.55....	
41 x 1,3	41,05	20,50	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

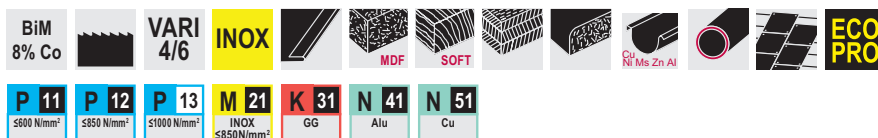


BIM HSS	HSS-E 8%	VARI	10°	HP2 UNI										
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 51 Cu	S 71 Ni/Co	S 72 Ti			
50-120	35-50	30-45	30-40	30-40	10-30	30-60	30-60	80-800	50-400	10-25	10-20			

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	20,45	14,00	66.700.34....	66.700.35....	66.700.36....	66.700.37....	66.700.38....
34 x 1,1	24,00	14,50	66.700.54....	66.700.55....	66.700.56....		
41 x 1,3	34,50	20,50	66.700.64....	66.700.65....	66.700.66....		
54 x 1,6	49,70	32,60	66.700.74....				

> 69.090 INTERNATIONAL TOOLS

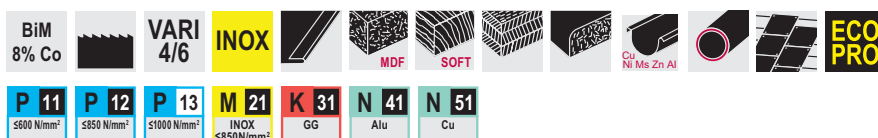
- NL ECO PRO HSS-Co 8% Bi-Metaal Set Gatzagen 61.090
 FR Jeu de Scies cloches HSS-Co 8% Bi-métal ECO PRO 61.090
 ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal ECO PRO 61.090
 DE ECO PRO HSS-Co 8% Bi-Metall Satz Lochsägen 61.090
 EN ECO PRO HSS-Co 8% Bi-Metal Hole saw set 61.090



Ref.	1	2	3	4	€
69.090.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	61.145.0201/0500	61.147.0600	61.160.9500	188,30
69.090.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	61.145.0201/0500	61.147.0600	61.160.9500	188,30

> 69.092 INTERNATIONAL TOOLS

- NL ECO PRO HSS-Co 8% Bi-Metaal Set Gatzagen 61.090, met Universele Quick-Change houder en adapters
 FR Jeu de Scies cloches HSS-Co 8% Bi-métal ECO PRO 61.090, avec système de changement rapide 'Quick Change' arbre et adaptateurs
 ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal ECO PRO 61.090, con husillo de cambio rápido y adaptadores
 DE ECO PRO HSS-Co 8% Bi-Metall Satz Lochsägen 61.090, mit Schnellwechselhalter und Adapter
 EN ECO PRO HSS-Co 8% Bi-Metal Hole saw set 61.090, with Quick-Change holder and adapters

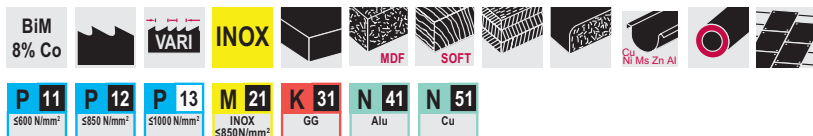


NIEUW NOUVEAU NUEVO NEU

Ref.	1	2	3 incl.	4 incl.	5 incl.	6 incl.	€
69.092.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	61.135.1432	5x 61.137.1401	7x 61.137.3201	61.148.0900	61.160.9500	199,00
69.092.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	61.135.1432	5x 61.137.1401	7x 61.137.3201	61.148.0900	61.160.9500	199,00

> 69.111 Phantom

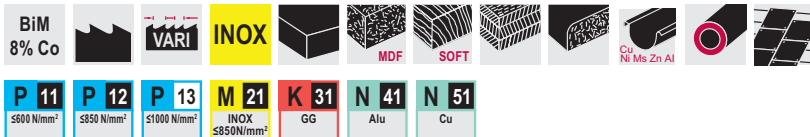
- NL HSS-Co 8% Bi-Metaal Set Gatzagen 61.105
 FR Jeu de Scies cloches HSS-Co 8% Bi-métal 61.105
 ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal 61.105
 DE HSS-Co 8% Bi-Metall Satz Lochsägen 61.105
 EN HSS-Co 8% Bi-Metal Hole saw set 61.105



Ref.	1	2	3	4	€
69.111.0900	19, 22, 29, 35, 38, 44, 51, 57, 64 mm	61.150.0201/0500	61.170.0600	61.160.9500	200,85
69.111.0901	19, 22, 29, 35, 38, 44, 51, 57, 68 mm	61.150.0201/0500	61.170.0600	61.160.9500	200,85
69.111.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	61.150.0201/0500	61.170.0600	61.160.9500	238,50
69.111.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	61.150.0201/0500	61.170.0600	61.160.9500	238,50

**> 69.112 Phantom**

- NL HSS-Co 8% Bi-Metaal Set Gatzagen 61.105, met Universele Quick-Change houder en adapters
- FR Jeu de Scies cloches HSS-Co 8% Bi-métal 61.105, avec système de changement rapide 'Quick Change' arbre et adaptateurs
- ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal 61.105, con husillo de cambio rápido y adaptadores
- DE HSS-Co 8% Bi-Metall Satz Lochsägen 61.105, mit Schnellwechselhalter und Adapter
- EN HSS-Co 8% Bi-Metal Hole saw set 61.105, with Quick-Change holder and adapters

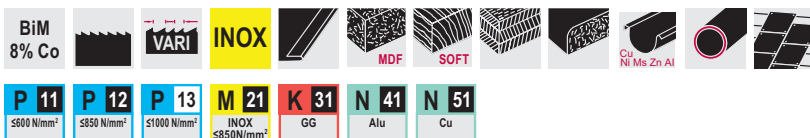


NIEUW NOUVEAU NUEVO NEU

Ref.	1	2	3 incl.	4 incl.	5 incl.	6 incl.	€
69.112.0900	19, 22, 29, 35, 38, 44, 51, 57, 64 mm	61.140.1432	3x 61.142.1401	6x 61.142.3201	61.180.0900	61.160.9500	225,00
69.112.0901	19, 22, 29, 35, 38, 44, 51, 57, 68 mm	61.140.1432	3x 61.142.1401	6x 61.142.3201	61.180.0900	61.160.9500	225,00
69.112.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	61.140.1432	5x 61.142.1401	7x 61.142.3201	61.180.0900	61.160.9500	272,00
69.112.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	61.140.1432	5x 61.142.1401	7x 61.142.3201	61.180.0900	61.160.9500	272,00

> 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 Lochsägen für dünne Platte und Rohren, 61.110
- EN HSS-Co 8% Bi-Metal Hole saw set for thin plates and tubes, 61.110



Ref.	1	2	3	4	€
69.114.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	61.150.0201/0500	61.170.0600	61.160.9500	231,15
69.114.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	61.150.0201/0500	61.170.0600	61.160.9500	231,15



- NL Gatzaag keuzehulp
- FR Guide de sélection de scie-cloche
- ES Guía de selección de coronas
- DE Auswahlhilfe für Lochsägen
- EN Hole saw selection guide

Read me



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> 69.116 Phantom

- NL HSS-Co 8% Bi-Metaal Set Gatzagen voor dunne plaat en buizen, 61.110, met Universele Quick-Change houder en adapters
- FR Jeu de Scies cloches HSS-Co 8% Bi-métal pour tôle fine et tube, 61.110, avec système de changement rapide 'Quick Change'arbre et adaptateurs
- ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal para chapa fina y tubos, 61.110, con husillo de cambio rápido y adaptadores
- DE HSS-Co 8% Bi-Metall Satz Lochsäger für dünne Platte und Rohren, 61.110, mit Schnellwechselhalter und Adapters
- EN HSS-Co 8% Bi-Metal Hole saw set for thin plates and tubes, 61.110, with Quick-Change holder and adapters

BiM
8% Co

P 11
≤600 N/mm²

P 12
≤850 N/mm²

P 13
≤1000 N/mm²

M 21
INOX
≤850 N/mm²

K 31
GG

N 41
Alu

N 51
Cu



Ref.	1	2	3 incl.	4 incl.	5 incl.	6 incl.	€
69.116.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	61.140.1432	5x 61.142.1401	7x 61.142.3201	61.180.0900	61.160.9500	255,00
69.116.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	61.140.1432	5x 61.142.1401	7x 61.142.3201	61.180.0900	61.160.9500	255,00

> 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

HSS-EX

P 11
≤600 N/mm²

P 12
≤850 N/mm²

P 13
≤1000 N/mm²

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.	Ø mm	€
69.210.0001	12-14-16-18-20-22 + 62.300.0026	208,05



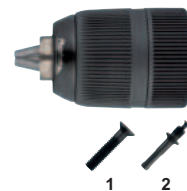
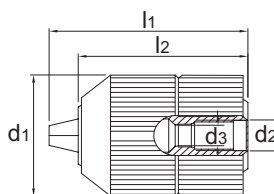
- NL Kernboren keuzehulp
- FR Aide à la sélection des fraises à carotter
- ES Ayuda para la selección de fresas huecas
- DE Auswahlhilfe Kernbohrer
- EN Selection guide for annular cutters



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**> 81.180 Phantom**

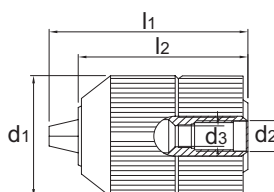
NL Snelspanboorhouder
FR Mandrin porte-forets auto-serrant
ES Portabroca cierre automático
DE Schnellspannbohrfutter
EN Keyless Drill Chuck



Ref.	Ø	d2	d3	d1	l2	l1	Watt Max.	1 incl.	2 excl.	€
81.180.1020	1-10	3/8"-24 UNF	5.5	41	54	64	400	81.182.0510	-	42,30
81.180.1325	2-13	1/2"-20 UNF	6.5	46	66	81	1000	81.182.0610	81.182.1330	62,00

> 81.181 Phantom

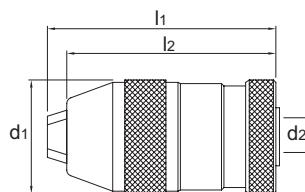
NL Snelspanboorhouder, in metalen uitvoering
FR Mandrin porte-forets auto-serrant, en métal
ES Portabroca cierre automático, en metal
DE Schnellspannbohrfutter, in Metallausführung
EN Keyless Drill Chuck, in metal



Ref.	Ø	d2	d3	d1	l2	l1	Watt Max.	1 incl.	2 excl.	€
81.181.1020	1-10	3/8"-24 UNF	5.5	40.4	56	65.5	1000	81.182.0510	-	45,50
81.181.1320	2-13	3/8"-24 UNF	5.5	42.5	68	75	1000	81.182.0510	-	58,10
81.181.1325	2-13	1/2"-20 UNF	6.5	42.5	68	75	1000	81.182.0610	81.182.1330	60,75

> 81.200 Phantom

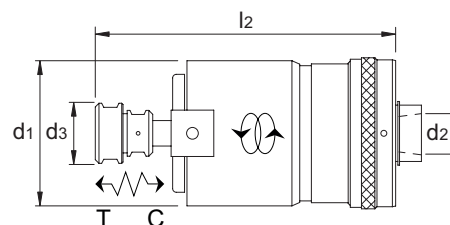
NL Zelfspannende Boorhouder, type A
FR Mandrin de perçage auto-serrant, type A
ES Portabroca cierre automático, tipo A
DE Selbstspannende Bohrfutter, Typ A
EN Industrial Keyless Chuck, type A

**TYPE A**

Ref.	Ø	d2	d1	l1	l2	Type	1	€
81.200.0810	0,8-8	B10	33	70	65	8A	81.412.0800	142,90
81.200.0812	0,8-8	B12	33	70	65	8A	81.412.0800	142,90
81.200.1012	0,8-10	B12	39	80	73	10A	81.412.0800	139,90
81.200.1016	0,8-10	B16	39	80	73	10A	81.412.0800	139,90
81.200.1020	0,8-10	3/8"-24 UNF	39	80	73	10A	81.412.0800	139,90
81.200.1092	0,8-10	J2	39	80	73	10A	81.412.0800	139,90
81.200.1094	0,8-10	J33	39	80	73	10A	81.412.0800	86,55
81.200.1312	1-13	B12	44	95	86	13A	81.412.1300	147,95
81.200.1316	1-13	B16	47	102	92	13A	81.412.1300	147,95
81.200.1320	2-13	3/8"-24 UNF	44	95	86	13A	81.412.0800	147,95
81.200.1325	2-13	1/2"-20 UNF	44	95	86	13A	81.412.0800	147,95
81.200.1392	1-13	J2	44	95	86	13A	81.412.1300	147,95
81.200.1396	1-13	J6	44	95	86	13A	81.412.1300	147,95
81.200.1616	3-16	B16	51	105	95	16A	81.412.1300	175,55
81.200.1618	3-16	B18	51	115	102	16A	81.412.1300	175,55
81.200.1625	3-16	1/2"-20 UNF	51	115	102	16A	81.412.1300	175,55
81.200.1630	3-16	5/8"-16 UN	51	115	102	16A	81.412.1300	175,55
81.200.1696	3-16	J6	51	115	102	16A	81.412.1300	175,55
81.200.1762	5-20	B18	64	140	127	20A	81.412.1600	262,00
81.200.1828	5-20	B22	64	140	127	20A	81.412.1600	262,00
81.200.1894	5-20	J3	64	140	127	20A	81.412.1600	262,00

> 81.700 INTERNATIONAL TOOLS

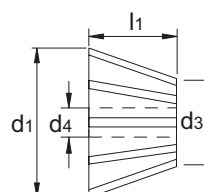
- NL ECO PRO Tapapparaat met omkeerinrichting, met druk- en trekcompensatie, met instelbare slippkoppeling
 FR Appareil à tarauder ECO PRO dispositif d'inversion, à compensation de pression et de traction, à réglage de couple par friction
 ES Aparato roscador ECO PRO con dispositivo de inversión, con compensación de presión y de tracción, con ajuste de par por fricción
 DE ECO PRO Gewindeschneidmaschinen mit Umkehrvorrichtung, mit Zug- und Druckausgleich, mit einstellbarer Rutschkupplung
 EN ECO PRO Tapping Unit with reversing arrangement, with push and pull compensation, with adjustable torque coupling



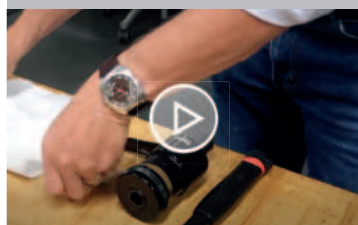
Ref.	Ø	d2	d1	d3	l2	x:y	RPM	Release	1 incl.	2 excl.	€
81.700.0070	M2-M7	B16	54	23	129.5	1:2.4	1500	3.5	81.710.0204/0407	84.170	589,00
81.700.0120	M5-M12	B16	74	28	156	1:2.2	1000	4	81.710.0510/0712	84.170	798,00
81.700.0200	M8-M20	B22	89	38	205.5	1:2.3	600	6	81.710.0814/1620	84.170	818,00

> 81.710 INTERNATIONAL TOOLS

- NL ECO PRO Rubberflex spantang voor 81.700
 FR Pince de serrage Rubberflex ECO PRO pour 81.700
 ES Pinza de sujeción Rubberflex ECO PRO parra 81.700
 DE ECO PRO Rubberflex-Spannzangen für 81.700
 EN ECO PRO Rubberflex collet for 81.700

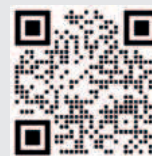


Ref.	d1	d3	d4	l1	M	Ø	€
81.710.0204	13.3	4.5	2.5	11	M2-M4	2,5-4,5	55,50
81.710.0407	13.3	6.5	4.5	11	M4-M7	4,5-6,5	55,50
81.710.0510	20.5	6.5	3.5	13	M5-M10	3,5-6,5	55,50
81.710.0712	20.5	10	6.5	13	M7-M12	6,5-10	55,50
81.710.0814	28.5	10	4.5	15	M8-M14	4,5-10	55,50
81.710.1620	28.5	13	7	15	M16-M20	7,0-13	55,50



- NL Montage boorhouderstift in tapkop
 FR Monter un arbre de mandrin de perçage dans un appareil à tarauder
 ES Sujetar una espiga en un portamachos
 DE Montieren Bohrfutteraufnahme im Gewindeschneidhalter
 EN Mounting arbor into tapping head

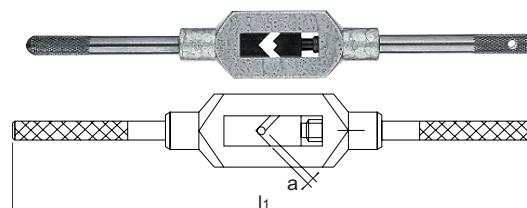
Watch me



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> 81.900

- NL Verstelbaar Wringijzer, standaard kwaliteit, Zink-legering
 FR Tourne à gauche expansible, qualité standard, alliage de zinc
 ES Giramacho extensible, calidad estándar, aleación de cinc
 DE Verstellbare Windeisen, Standard-Qualität, Zinkdruckguß
 EN Adjustable Tap Wrench, standard quality, zinc die cast



DIN
1814

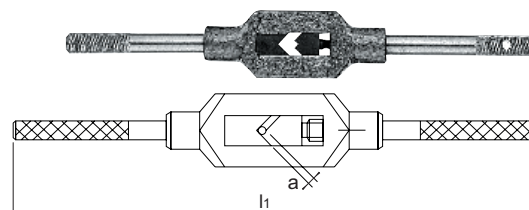
Ref.	Nr.	M	BSW	BSP	l1	a	€
81.900.0000	0	M1-M6	1/16-1/4	-	125	2-5	8,77
81.900.0100	1	M1-M10	1/16-3/8	1/8	180	2-6	8,93
81.900.0150	1,5	M3-M12	1/16-1/2	1/8	200	2,5-8	9,30
81.900.0200	2	M4,5-M16	5/32-1/2	1/8	280	4-9	16,37
81.900.0300	3	M4,5-M20	7/32-3/4	1/8-1/2	375	4,9-12	28,85
81.900.0400	4	M7-M27	7/16-1	1/4-3/4	500	5,5-16	45,00
81.900.0500	5L	M9-M33	1/2-1.1/4	1/4-1	750	7-20	72,70

**> 81.905**

NL Verstelbaar Wringijzer, extra kwaliteit, staal
 FR Tourne à gauche expansible, qualité supérieure, acier
 ES Giramacho extensible, calidad superior, acero
 DE Verstellbare Windeisen, Extra-Qualität, Stahl
 EN Adjustable Tap Wrench, extra quality, steel

DIN

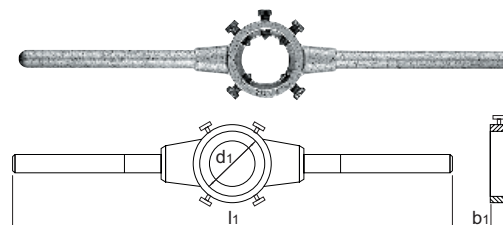
1814



Ref.	Nr.	M	BSW	BSP	l1	a	€
81.905.0000	0	M1-M6	1/16-1/4	-	130	2-5	18,00
81.905.0100	1	M1-M10	1/16-3/8	1/8	180	2-6	21,00
81.905.0150	1,5	M3-M12	1/16-1/2	1/8	200	2,5-8	21,00
81.905.0200	2	M4,5-M16	5/32-1/2	1/8	280	4-9	32,00
81.905.0300	3	M4,5-M20	7/32-3/4	1/8-1/2	375	4,9-12	48,00
81.905.0400	4	M7-M27	7/16-1	1/4-3/4	500	5,5-16	79,00
81.905.0500	5S	M9-M33	1/2-1.1/4	1/4-1	750	7-20	136,00
81.905.0600	6L	M18-M42	3/4-1.1/2	1/2-1.1/4	1000	9-25	151,70
81.905.0800	8	M27-M68	1-2.1/2	3/4-3	1250	16-40	223,45

> 81.910

NL Snijplaathouder, standaard kwaliteit, Zink-legering
 FR Porte-filières, qualité standard, alliage de zinc
 ES Portaterraja, calidad estándar, aleación de cinc
 DE Schneideisenhalter, Standard-Qualität, Zinkdruckguß
 EN Die Stock, standard quality, zinc die cast



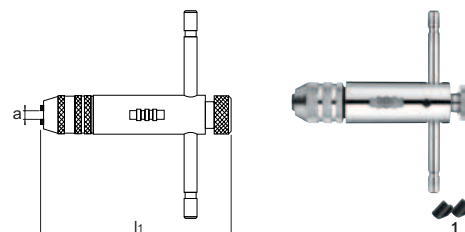
DIN EN	DIN	DIN EN	DIN EN	ISO
22568	225	24230	24231	2568

Ref.	d1	b1	l1	€
81.910.1605	16	5	160	3,30
81.910.2005	20	5	200	3,90
81.910.2007	20	7	200	3,90
81.910.2509	25	9	224	4,85
81.910.3011	30	11	280	7,65
81.910.3810	38	10	315	10,60
81.910.3814	38	14	315	10,60
81.910.4514	45	14	450	16,65
81.910.4518	45	18	450	16,65
81.910.5516	55	16	560	23,10
81.910.5522	55	22	560	23,10
81.910.6518	65	18	630	30,40
81.910.6525	65	25	630	30,40

Ref.	d1	b1	l1	€
81.910.7520	75	20	800	111,30
81.910.7530	75	30	800	67,90
81.910.9022	90	22	900	152,75
81.910.9036	90	36	900	152,75
81.910.9122	105	22	1000	261,00
81.910.9136	105	36	1000	261,00
81.910.9222	120	22	1100	426,00
81.910.9236	120	36	1100	426,00
81.910.9322	130	22	1100	600,00
81.910.9336	130	36	1100	600,00
81.910.9422	140	22	1200	719,00
81.910.9522	150	22	1200	820,00
81.910.9622	160	22	1300	1.336,00

> 81.930

NL Rateltapkruk
 FR Porte-tarauts à cliquet
 ES Giromacho en T con carraca
 DE Werkzeughalter mit Knarre
 EN T-handle tap Wrench



Ref.	Nr.	M	BSW	BSP	a	l1	1	€
81.930.0100	1	M3-M10	1/8-3/8	-	2,4-5,5	85	81.938.0100	15,00
81.930.0200	2	M5-M12	7/32-1/2	1/8	4,5-7	100	81.938.0200	20,00

> 84.100 INTERNATIONAL TOOLS

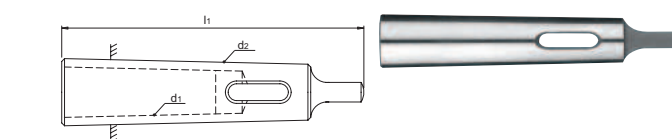
NL ECO PRO Boorhuls (Reduceerhuls) MK x MK
 FR Douille (de réduction) ECO PRO CM x CM
 ES Casquillo (Casquillo de reducción) ECO PRO CM x CM
 DE ECO PRO Bohrhülse (Reduzierhülse) MK x MK
 EN ECO PRO Morse Taper Sleeve (Reducing Bush) MT x MT

DIN
228-B

DIN
2185

ECO
PRO

Ref.	d2	d1	l1	€
84.100.0100	MK 1	MK 0	85	7,50
84.100.0201	MK 2	MK 1	92	7,55
84.100.0301	MK 3	MK 1	99	7,13
84.100.0302	MK 3	MK 2	112	7,13
84.100.0401	MK 4	MK 1	124	10,23
84.100.0402	MK 4	MK 2	124	10,23
84.100.0403	MK 4	MK 3	140	10,23
84.100.0501	MK 5	MK 1	156	24,68



Ref.	d2	d1	l1	€
84.100.0502	MK 5	MK 2	156	23,59
84.100.0503	MK 5	MK 3	156	21,55
84.100.0504	MK 5	MK 4	171	21,55
84.100.0602	MK 6	MK 2	218	42,30
84.100.0603	MK 6	MK 3	218	37,05
84.100.0604	MK 6	MK 4	218	37,05
84.100.0605	MK 6	MK 5	218	37,05

> 84.110 INTERNATIONAL TOOLS

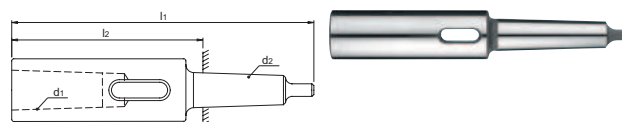
NL ECO PRO Verlengde Boorhuls MK x MK
 FR Douille allongée ECO PRO CM x CM
 ES Casquillo de prolongación ECO PRO CM x CM
 DE ECO PRO Verlängerte Bohrhülse MK x MK
 EN ECO PRO Extended Morse Taper Sleeve MT x MT

DIN
228-B

DIN
2187

ECO
PRO

Ref.	d2	d1	l1	l2	€
84.110.0101	MK 1	MK 1	145	83	10,70
84.110.0102	MK 1	MK 2	160	91	19,22
84.110.0103	MK 1	MK 3	183	121	29,35
84.110.0201	MK 2	MK 1	160	85	14,94
84.110.0202	MK 2	MK 2	175	100	20,32
84.110.0203	MK 2	MK 3	196	112	27,70
84.110.0204	MK 2	MK 4	221	146	38,35
84.110.0301	MK 3	MK 1	175	81	20,61
84.110.0302	MK 3	MK 2	194	100	20,32
84.110.0303	MK 3	MK 3	215	121	27,70
84.110.0304	MK 3	MK 4	240	137	32,80



Ref.	d2	d1	l1	l2	€
84.110.0305	MK 3	MK 5	275	181	63,95
84.110.0401	MK 4	MK 1	200	76	29,85
84.110.0402	MK 4	MK 2	215	97.5	24,65
84.110.0403	MK 4	MK 3	240	122.5	28,85
84.110.0404	MK 4	MK 4	265	147.5	46,55
84.110.0405	MK 4	MK 5	300	172	69,40
84.110.0502	MK 5	MK 2	247	145	49,70
84.110.0503	MK 5	MK 3	268	118.5	49,70
84.110.0504	MK 5	MK 4	300	150.5	48,05
84.110.0505	MK 5	MK 5	335	185.5	75,70

> 84.170 INTERNATIONAL TOOLS

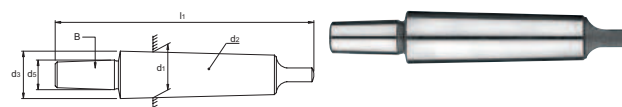
NL ECO PRO Boorhouderstift MK en B-opname DIN 238
 FR Arbre de mandrin de perçage ECO PRO CM et cône B selon DIN 238
 ES Espiga para portabrocas ECO PRO CM y con sujeción B DIN 238
 DE ECO PRO Bohrfutterkegel MK und B-Aufnahme DIN 238
 EN ECO PRO Drill Chuck Arbor MT and B Taper DIN 238

DIN
228-B

DIN
238

ECO
PRO

Ref.	d2	B	l1	d1	d5	d3	€
84.170.0110	MK 1	B10	86	12.065	10.095	12.22	5,13
84.170.0112	MK 1	B12	90	12.065	12.065	12.22	5,13
84.170.0116	MK 1	B16	96	12.065	15.733	12.22	5,13
84.170.0118	MK 1	B18	104	12.065	17.78	12.22	5,13
84.170.0210	MK 2	B10	105	17.78	10.095	18	5,67
84.170.0212	MK 2	B12	105	17.78	12.065	18	5,67
84.170.0216	MK 2	B16	112	17.78	15.733	18	5,67
84.170.0218	MK 2	B18	119	17.78	17.78	18	5,67
84.170.0222	MK 2	B22	128	17.78	21.793	18	5,67
84.170.0312	MK 3	B12	124	23.825	12.065	24.1	7,35



Ref.	d2	B	l1	d1	d5	d3	€
84.170.0316	MK 3	B16	130	23.825	15.733	24.1	7,35
84.170.0318	MK 3	B18	138	23.825	17.78	24.1	7,35
84.170.0322	MK 3	B22	147	23.825	21.793	24.1	7,91
84.170.0416	MK 4	B16	156	31.267	15.733	31.6	10,93
84.170.0418	MK 4	B18	164	31.267	17.78	31.6	10,93
84.170.0422	MK 4	B22	176	31.267	21.793	31.6	10,93
84.170.0516	MK 5	B16	188	44.399	15.733	44.7	22,95
84.170.0518	MK 5	B18	198	44.399	17.78	44.7	22,95
84.170.0522	MK 5	B22	207	44.399	21.793	44.7	22,95

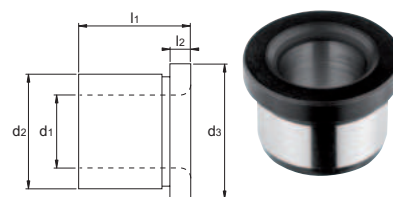
**> 84.872 Phantom**

NL Boorbus, korte uitvoering, met kraag
 FR Canon de perçage, version courte, à collerette
 ES Casquillo guía broca, versión corto, con valona
 DE Bohrbuchsen, kurze Ausführung, mit Kragen
 EN Drill Bush, short series, headed

DIN
172-A

n6

F7



Ref.	d1	d2	d3	l1	l2	€
84.872.0120	1.2	4	7	6	2	15,14
84.872.0130-84.872.0140	1.3-1.4	4	7	6	2	15,13
84.872.0150-84.872.0180	1.5-1.8	4	7	6	2	8,24
84.872.0190-84.872.0260	1.9-2.6	5	8	6	2	4,39
84.872.0270-84.872.0330	2.7-3.3	6	9	8	2.5	4,28
84.872.0340-84.872.0400	3.4-4	7	10	8	2.5	4,11
84.872.0410-84.872.0500	4.1-5	8	11	8	2.5	4,11
84.872.0510-84.872.0600	5.1-6	10	13	10	3	4,31
84.872.0610-84.872.0800	6.1-8	12	15	10	3	4,85
84.872.0810-84.872.1000	8.1-10	15	18	12	3	5,17

Ref.	d1	d2	d3	l1	l2	€
84.872.1010-84.872.1200	10.1-12	18	22	12	4	5,66
84.872.1210-84.872.1500	12.1-15	22	26	16	4	6,47
84.872.1525-84.872.1800	15.25-18	26	30	16	4	8,02
84.872.1825-84.872.2200	18.25-22	30	34	20	5	10,53
84.872.2225-84.872.2600	22.25-26	35	39	20	5	13,18
84.872.2625-84.872.3000	26.25-30	42	46	25	5	16,92
84.872.3025-84.872.3500	30.25-35	48	52	25	5	24,48
84.872.3550-84.872.3750	35.5-37.5	55	59	30	5	37,75
84.872.3800	38	55	59	30	5	41,15
84.872.3850-84.872.4000	38.5-40	55	59	30	5	40,80

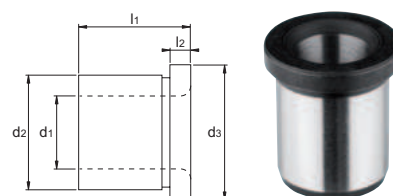
> 84.873 Phantom

NL Boorbus, middellange uitvoering, met kraag
 FR Canon de perçage, version longue, à collerette
 ES Casquillo guía broca, versión larga, con valona
 DE Bohrbuchsen, mittellange Ausführung, mit Kragen
 EN Drill Bush, long version, headed

DIN
172-A

F7

n6



Ref.	d1	d2	d3	l1	l2	€
84.873.0120-84.873.0140	1.2-1.4	4	7	9	2	18,13
84.873.0150-84.873.0180	1.5-1.8	4	7	9	2	11,00
84.873.0190-84.873.0260	1.9-2.6	5	8	9	2	4,71
84.873.0270-84.873.0330	2.7-3.3	6	9	12	2.5	4,71
84.873.0340-84.873.0400	3.4-4	7	10	12	2.5	4,67
84.873.0410-84.873.0500	4.1-5	8	11	12	2.5	4,56
84.873.0510-84.873.0600	5.1-6	10	13	16	3	4,85

Ref.	d1	d2	d3	l1	l2	€
84.873.0610-84.873.0800	6.1-8	12	15	16	3	5,26
84.873.0810-84.873.1000	8.1-10	15	18	20	3	5,90
84.873.1020-84.873.1200	10.2-12	18	22	20	4	6,47
84.873.1225-84.873.1500	12.25-15	22	26	28	4	8,96
84.873.1525-84.873.1800	15.25-18	26	30	28	4	10,70
84.873.1825-84.873.2000	18.25-20	30	34	36	5	14,31
84.873.3400	34	48	52	45	5	9,77

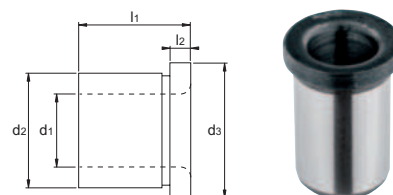
> 84.874 Phantom

NL Boorbus, extra lange uitvoering, met kraag
 FR Canon de perçage, version extra longue, à collerette
 ES Casquillo guía broca, versión extra larga, con valona
 DE Bohrbuchsen, extra lange Ausführung, mit Kragen
 EN Drill Bush, extra long series, headed

DIN
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Ref.	d1	d2	d3	l1	l2	€
84.874.0300	3	6	9	16	2.5	8,10
84.874.0350	3.5	7	10	16	2.5	6,95
84.874.0400	4	7	10	16	2.5	6,95
84.874.0450	4.5	8	11	16	2.5	7,27
84.874.0500	5	8	11	16	2.5	7,27
84.874.0550	5.5	10	13	20	3	7,52
84.874.0600	6	10	13	20	3	7,52
84.874.0650	6.5	12	15	20	3	8,19
84.874.0700	7	12	15	20	3	8,19

Ref.	d1	d2	d3	l1	l2	€
84.874.0750	7.5	12	15	20	3	8,19
84.874.0800	8	12	15	20	3	8,19
84.874.0850	8.5	15	18	25	3	9,18
84.874.0900	9	15	18	25	3	9,18
84.874.0950	9.5	15	18	25	3	9,18
84.874.1000	10	15	18	25	3	9,18
84.874.1050	10.5	18	22	25	4	10,26
84.874.1100	11	18	22	25	4	10,26
84.874.1150	11.5	18	22	25	4	10,26

Ref.	d1	d2	d3	l1	l2	€
84.874.1200	12	18	22	25	4	10,26
84.874.1250	12.5	22	26	36	4	13,96
84.874.1300	13	22	26	36	4	13,96
84.874.1350	13.5	22	26	36	4	13,96
84.874.1400	14	22	26	36	4	13,96
84.874.1450	14.5	22	26	36	4	13,96
84.874.1500	15	22	26	36	4	13,96
84.874.1550	15.5	26	30	36	4	18,53
84.874.1600	16	26	30	36	4	18,53

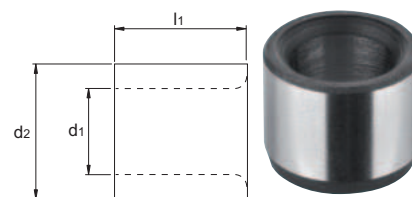
> 84.879 Phantom

NL Boorbus, korte uitvoering
 FR Canon de perçage, version courte
 ES Casquillo guía broca, versión corto
 DE Bohrbuchsen, kurze Ausführung
 EN Drill Bush, short series

DIN
179-A

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n6



Ref.	d1	d2	l1	€
84.879.0120-84.879.0140	1.2-1.4	4	6	11,27
84.879.0150	1.5	4	6	12,00
84.879.0160-84.879.0180	1.6-1.8	4	6	9,00
84.879.0190-84.879.0260	1.9-2.6	5	6	3,09
84.879.0270-84.879.0330	2.7-3.3	6	8	3,09
84.879.0340-84.879.0400	3.4-4	7	8	3,03
84.879.0410-84.879.0500	4.1-5	8	8	3,20
84.879.0510-84.879.0600	5.1-6	10	10	3,35
84.879.0610-84.879.0800	6.1-8	12	10	3,53
84.879.0810-84.879.1000	8.1-10	15	12	3,81
84.879.1010-84.879.1200	10.1-12	18	12	4,30
84.879.1210-84.879.1500	12.1-15	22	16	4,85
84.879.1525-84.879.1800	15.25-18	26	16	6,18
84.879.1825-84.879.2200	18.25-22	30	20	7,90
84.879.2225-84.879.2600	22.25-26	35	20	9,34

Ref.	d1	d2	l1	€
84.879.2625-84.879.2775	26.25-27.75	42	25	14,35
84.879.2800	28	42	25	16,08
84.879.2825-84.879.2875	28.25-28.75	42	25	14,35
84.879.2900	29	42	25	16,08
84.879.2925-84.879.2975	29.25-29.75	42	25	14,35
84.879.3000	30	42	25	16,08
84.879.3025-84.879.3500	30.25-35	48	25	18,18
84.879.3550-84.879.3950	35.5-39.5	55	30	29,55
84.879.4000	40	55	30	30,30
84.879.4100-84.879.4200	41-42	55	30	29,55
84.879.4300-84.879.4800	43-48	62	30	36,40
84.879.4900-84.879.5500	49-55	70	30	45,60
84.879.6000-84.879.6200	60-62	78	35	63,40
84.879.6500-84.879.7000	65-70	85	35	143,70

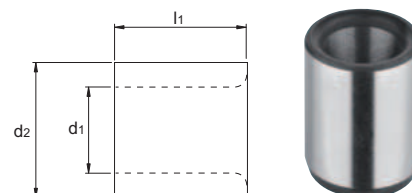
> 84.880 Phantom

NL Boorbus, middellange uitvoering
 FR Canon de perçage, version longue
 ES Casquillo guía broca, versión larga
 DE Bohrbuchsen, mittellange Ausführung
 EN Drill Bush, long version

DIN
179-A

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Ref.	d1	d2	l1	€
84.880.0120-84.880.0140	1.2-1.4	4	9	14,16
84.880.0150-84.880.0180	1.5-1.8	4	9	6,36
84.880.0190-84.880.0260	1.9-2.6	5	9	3,58
84.880.0270-84.880.0330	2.7-3.3	6	12	3,56
84.880.0340-84.880.0400	3.4-4	7	12	3,56
84.880.0410-84.880.0500	4.1-5	8	12	3,56
84.880.0510-84.880.0600	5.1-6	10	16	3,87

Ref.	d1	d2	l1	€
84.880.0610-84.880.0800	6.1-8	12	16	4,09
84.880.0810-84.880.1000	8.1-10	15	20	4,60
84.880.1020-84.880.1200	10.2-12	18	20	5,26
84.880.1225-84.880.1500	12.25-15	22	28	6,61
84.880.1525-84.880.1800	15.25-18	26	28	7,96
84.880.1825-84.880.2000	18.25-20	30	36	10,79
84.880.2500	25	35	36	11,68

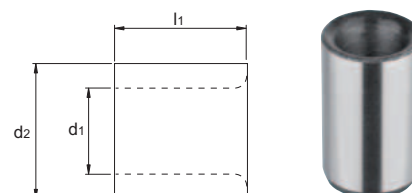
> 84.881 Phantom

NL Boorbus, extra lange uitvoering
 FR Canon de perçage, version extra longue
 ES Casquillo guía broca, versión extra larga
 DE Bohrbuchsen, extra lange Ausführung
 EN Drill Bush, extra long series

DIN
179-A

F7

n6



Ref.	d1	d2	l1	€
84.881.0300	3	6	16	7,17
84.881.0350	3.5	7	16	5,23
84.881.0400	4	7	16	5,23
84.881.0450	4.5	8	16	4,85
84.881.0500	5	8	16	4,85
84.881.0550	5.5	10	20	4,93
84.881.0600	6	10	20	4,93
84.881.0650	6.5	12	20	5,30
84.881.0700	7	12	20	5,30
84.881.0750	7.5	12	20	5,30

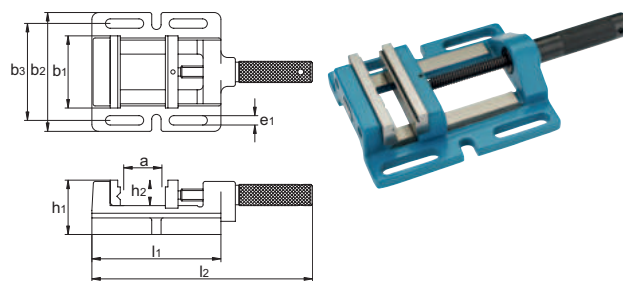
Ref.	d1	d2	l1	€
84.881.0780	7.8	12	20	5,30
84.881.0800	8	12	20	5,30
84.881.0850	8.5	15	25	5,93
84.881.0900	9	15	25	5,93
84.881.0950	9.5	15	25	5,93
84.881.1000	10	15	25	5,93
84.881.1050	10.5	18	25	7,02
84.881.1100	11	18	25	7,02
84.881.1150	11.5	18	25	7,02
84.881.1200	12	18	25	7,02

Ref.	d1	d2	l1	€
84.881.1250	12.5	22	36	8,82
84.881.1300	13	22	36	8,82
84.881.1350	13.5	22	36	8,82
84.881.1400	14	22	36	8,82
84.881.1450	14.5	22	36	8,82
84.881.1500	15	22	36	8,82
84.881.1550	15.5	26	36	11,08
84.881.1600	16	26	36	11,08
84.881.1650	16.5	26	36	11,08
84.881.3200	32	48	56	30,70



> 88.152 INTERNATIONAL TOOLS

NL ECO PRO Boorklem
 FR Étau machine ECO PRO
 ES Mordaza para taladros ECO PRO
 DE ECO PRO Bohrschraubstock
 EN ECO PRO Drilling Machine Vise

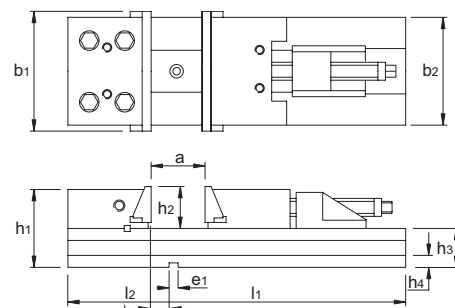
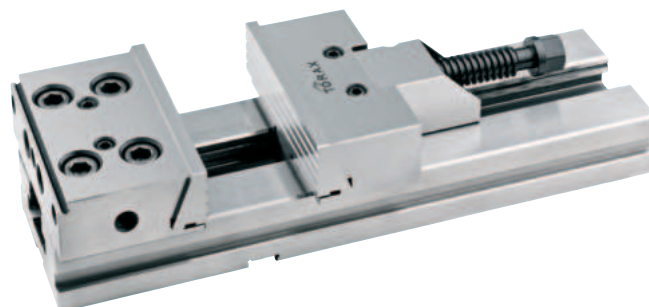


ECO PRO

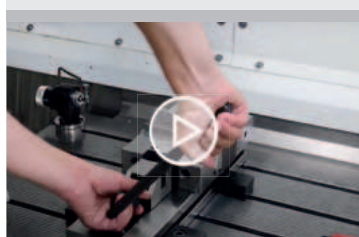
Ref.	b1	b2	b3	a max	l1	l2	h1	h2	e1	€
88.152.0085	85	143	105	70	157	238	54	30	12,5	98,05
88.152.0100	100	152	126	95	176	280	60	30	14	113,55
88.152.0120	120	178	149	105	220	340	60	35	14	170,35
88.152.0150	150	195	166	140	229	380	77	39	15	253,00

> 88.440 TORAX

NL Precisie Machinespanklem
 FR Étau de fraisage de précision
 ES Mordaza mecánica de precisión
 DE Präzisionsschraubstöcke
 EN Precision Compact Vise



Ref.	b1	b2	l1	l2	h1	h2	h3	h4	a max	e1 N6	Max. daN	€
88.440.1027	100	75	270	25.61	65	30	35	15	100	16	3000	846,00
88.440.1234	125	95	345	25.61	80	40	40	15	150	16	3000	986,00
88.440.1542	150	125	420	25.61	100	50	50	20	200	16	5000	1.050,00
88.440.1552	150	125	520	25.61	100	50	50	20	300	16	5000	1.278,00
88.440.1745	175	145	455	25.61	118	60	58	20	200	16	6000	1.440,00
88.440.1755	175	145	555	25.61	118	60	58	20	300	16	6000	1.523,00
88.440.1765	175	145	655	25.61	118	60	58	20	400	16	6000	1.704,00
88.440.1775	175	145	755	25.61	118	60	58	20	500	16	6000	2.036,00
88.440.2059	200	170	595	25.61	135	65	70	26	300	16	10000	2.202,00
88.440.2069	200	170	695	25.61	135	65	70	26	400	16	10000	2.534,00
88.440.2079	200	170	795	25.61	135	65	70	26	500	16	10000	3.049,00
88.440.3063	300	195	635	25.61	158	80	78	26	300	16	12000	3.135,00
88.440.3073	300	195	735	25.61	158	80	78	26	400	16	12000	3.221,00
88.440.3083	300	195	835	25.61	158	80	78	26	500	16	12000	3.472,00
88.440.3093	300	195	935	25.61	158	80	78	26	600	16	12000	3.816,00



NL Opspannen product in precisieklem
 FR Serrer une pièce dans un étau de précision
 ES Sujetar un producto en una mordaza de precisión
 DE Einspannen von Werkstücken im präzision Machineschraubstock
 EN Clamping material in precision vise

Watch me

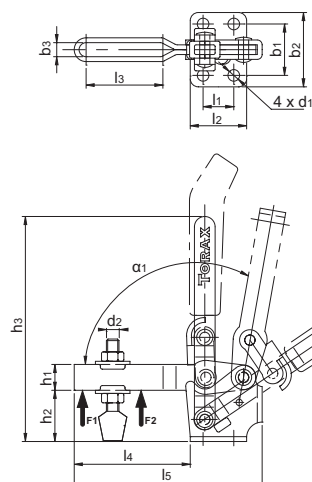


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> 88.900

TORAX

- NL Verticale Snelspanklem, met horizontale voet
 FR Sauterelle verticale, à pied horizontal
 ES Grapas Rápidas vertical, con base horizontal
 DE Vertikale Spannklemme, mit waagrechtem Fuß
 EN Vertical Clamp, with horizontal foot

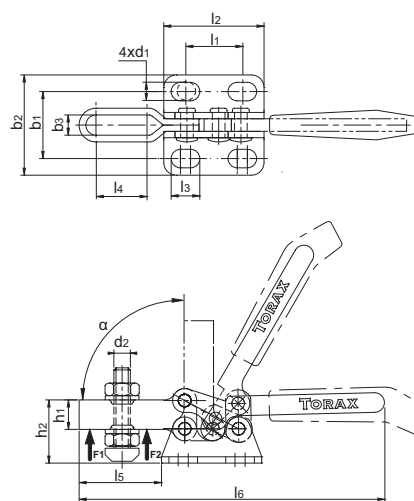


Ref.	Nr.	b1	l1	d1	b2	l2	b3	h1	h2	h3	l3	l4	l5	$\alpha 1$	F1	F2	d2	€
88.900.0000	Gr. 0	23.8	15.9	4.4	33.3	25.4	5	8	18.8	76.1	21	26	54.2	100°	0.5	0.7	M4 x 25	17,45
88.900.0100	Gr. 1	27	12.7	5.2	39.7	25.4	6.4	9.8	22.7	97.3	21	33	64	100°	0.8	1.1	M6 x 44	18,95
88.900.0300	Gr. 3	31.8	19	7.2	46	34.9	8.7	16	31.8	140	47.6	71.4	116	100°	1.4	2.5	M8 x 63	26,50
88.900.0400	Gr. 4	45.3	31.8	8.7	64.3	49.2	11	19	44	202	49.2	85.1	140.9	105°	2	3	M10 x 85	39,45
88.900.0500	Gr. 5	45.2	31.8	8.7	64.2	50.8	13.4	23	51	225	79.4	125.4	176.2	100° - 135°	3	5	M12 x 100	63,70
88.900.0600	Gr. 6	69.8	50.8	12.3	95.2	76.2	16.7	32	82.6	305	114	153	229.2	100° - 140°	3.5	5.5	M16 x 150	82,65

> 88.910

TORAX

- NL Horizontale Snelspanklem, met horizontale voet
 FR Sauterelle horizontale, à pied horizontal
 ES Grapas Rápidas horizontal, con base horizontal
 DE Horizontaler Spannklemme, mit waagrechtem Fuß
 EN Horizontal Clamp, with horizontal foot

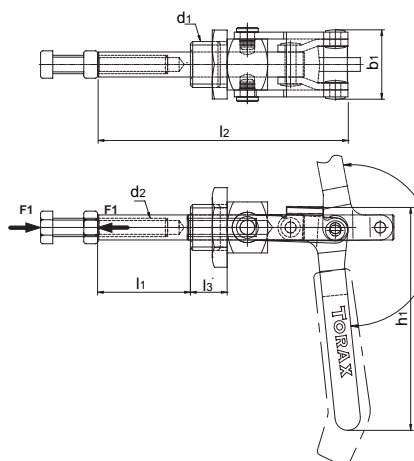


Ref.	Nr.	b1	l1	b2	l2	l3	b3	h1	h2	l4	l5	l6	$\alpha 1$	F1	F2	d1	d2	€
88.910.0000	Gr. 0	15.9	13.5	23.8	23.8	6.8	4.8	7	15	11	19.6	77	90°	0.25	0.4	4.4	M4 x 25	15,15
88.910.0200	Gr. 2	22	27	36	37	6	7.4	12.7	38.1	35	56.2	142	85°	1	1.2	5.2	M6 x 44	22,00
88.910.0300	Gr. 3	22.2	23.1	35	38	9	8.7	12.7	47.6	44	70	168	90°	1.8	2.5	6.7	M8 x 63	26,50
88.910.0500	Gr. 5	41.3	41.3	57.2	57.1		11	19	63.5	78	107	292	85°	3	5	8.3	M10 x 85	39,45

> 88.920

TORAX

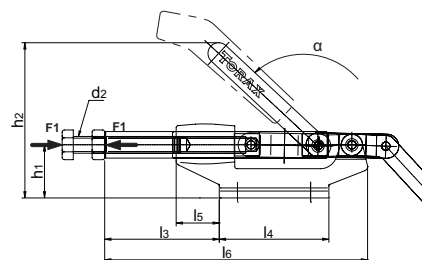
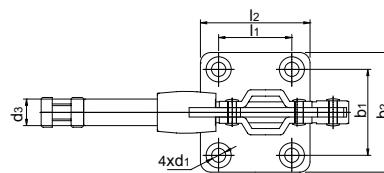
- NL Schuifstang Snelspanklem, zonder voet
 FR Sauterelle à tige coulissante, sans pied
 ES Grapas Rápidas Barra corredera, sin base
 DE Spannklemme mit Schiebestange, ohne Fuß
 EN Clamp Telescopic arm, without foot



Ref.	Nr.	l1	l2	b1	d1	h1	l3	$\beta 1$	F1	d2	€
88.920.0200	Gr. 2	21	64.2	24	M16 x 1,5	75	12.7	180°	2	M6 x 1 x 25	31,25
88.920.0300	Gr. 3	39.7	115	31	M20 x 1,5	98	15.9	180°	2.5	M8 x 1,25 x 35	35,55
88.920.0500	Gr. 5	70.3	171	39	M27 x 2	137	22.3	180°	4.5	M10 x 1,5 x 40	57,55


> 88.928
TORAX

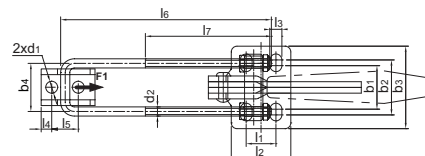
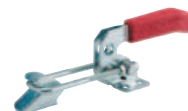
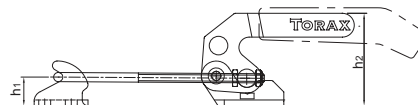
NL Schuifstang Snelspanklem, met voet, zware uitvoering
 FR Sauterelle à tige coulissante, à pied, version extra lourde
 ES Grapas Rápidas Barra corredera, con base, versión macizo
 DE Spannklemme mit Schiebestange, mit Fuß, schwere Ausführung
 EN Clamp Telescopic arm, with foot, heavy duty version



Ref.	Nr.	b1	l1	b2	l2	h1	h2	d1	d3	l3	l4	l5	l6	α	F1	d2	€
88.928.0300	Gr. 3	41.1	35	57.2	52.4	25.4	74.2	6.7	12.7	54.8	52.4	20.6	125	190°	4	M8 x 1,25	45,50
88.928.0500	Gr. 5	41.1	41.1	57.2	58.8	31.8	93.5	8.3	16	81	58.8	31.8	163	185°	10	M10 x 1,5	63,70
88.928.0700	Gr. 7	50.8	50.8	71.4	73.2	44.4	131.6	8.3	19.2	119.8	73.2	50.8	235	185°	25	M12 x 1,75	96,55

> 88.940
TORAX

NL Sluitspanner, met voet en tegenhouder
 FR Collier de serrage, à pied et bras support
 ES Pasador de cierre, con base y contrasoporte
 DE Beckenendlage, mit Fuß und Gegenhalter
 EN Locking clamp, with foot and tailstock



Ref.	Nr.	b1	l1	b2	l2	b3	l3	b4	l4	l5	d1	h1	h2	l6	l7	F1	d2	€
88.940.0200	Gr. 2	19	13	24	26	36	5.2	21	4.6	11.6	5.2	12.5	40.3	92	55	1.6	M4	25,60
88.940.0300	Gr. 3	25	19	32	35	48	6.5	28.5	17.7	14	6.4	21	59	114	60	3.2	M6	34,15
88.940.0500	Gr. 5	36	32	45	51	60	8.5	44.5	8	19	8.5	24.2	82.3	152	60	7	M8	54,00

> 90.105 Phantom

- NL Universal Snijolie EP (Extreme Pressure), chloor- en siliconenvrij, op plantaardige basis
 FR Huile de coupe Universal EP (Haute Pression), sans chlore, à base d'huile végétale
 ES Aceite de corte Universal EP (Alta Presión), sin cloro, base vegetal
 DE Universal Schneidöl EP (Hochdruck), Chlor- und Silikonfrei, auf pflanzlicher Basis
 EN Universal Cutting oil EP (Extreme Pressure), chlorine-free, vegetable based



UNI



Ref.	Contents	€
90.105.0250	250 ml	17,95

Ref.	Contents	€
90.105.0251	Box with 10 pcs	142,55

> 90.110 Phantom

- NL Universal Snijolie EP (Extreme Pressure), chloor- en siliconenvrij, op mineraaloliebasis
 FR Huile de coupe Universal EP (Haute Pression), sans chlore, à base d'huile minérale
 ES Aceite de corte Universal EP (Alta Presión), sin cloro, base de aceite mineral
 DE Universal Schneidöl EP (Hochdruck), Chlor- und Silikonfrei, auf Mineralölbasis
 EN Universal Cutting oil EP (Extreme Pressure), chlorine-free, mineral oil based



UNI

Ref.	Contents	€
90.110.0250	250 ml	20,92
90.110.0251	Box with 10 pcs	166,20
90.110.5005	5 l	133,25
90.110.5010	10 l	230,50

Ref.	Contents	€
90.110.5025	25 l	545,00
90.110.5060	60 l	1.185,00
90.110.5200	200 l	3.372,00

> 90.130 Phantom

- NL Heavy Duty Snijolie EP (Extreme Pressure), chloor- en siliconenvrij, op mineraaloliebasis
 FR Huile de coupe Heavy Duty EP (Haute Pression), sans chlore, à base d'huile minérale
 ES Aceite de corte Heavy Duty EP (Alta Presión), sin cloro, base de aceite mineral
 DE Heavy Duty Schneidöl EP (Hochdruck), Chlor- und Silikonfrei, auf Mineralölbasis
 EN Heavy Duty Cutting oil EP (Extreme Pressure), chlorine-free, mineral oil based



INOX

Ref.	Contents	€
90.130.0250	250 ml	23,71
90.130.0251	Box with 10 pcs	189,35
90.130.5005	5 l	161,70
90.130.5010	10 l	256,00

Ref.	Contents	€
90.130.5025	25 l	692,00
90.130.5060	60 l	1.452,00
90.130.5200	200 l	4.223,00



> 90.140 Phantom

- NL Universal Snijolie spray EP (Extreme Pressure), chloor- en siliconenvrij, op plantaardige basis
 FR Universal Huile de coupe spray EP (Haute Pression), sans chlore, à base d'huile végétale
 ES Universal Aceite de corte pulverizador EP (Alta Presión), sin cloro, base vegetal
 DE Universal Schneidöl Spray EP (Extreme Pressure), Chlor- und Silikonfrei, auf pflanzlicher Basis
 EN Universal Cutting oil spray EP (Extreme Pressure), chlorine-free, vegetable based



UNI



Ref.	Contents	€
90.140.0400	400 ml	20,92

Ref.	Contents	€
90.140.0401	12 x 400 ml	203,05

> 90.145 Phantom

- NL Universal Snijolie-schuim, chloor-, zwavel- en mineraalolvrij
 FR Huile de coupe Universal sous forme de mousse, sans chlore, ni soufre ni huile minérale
 ES Aceite de corte Universal en espuma, sin cloro, azufre y aceite mineral
 DE Universal Schneidöl-Schaum, Chlor-, Schwefel und Mineralölfrei
 EN Universal Cutting oil foam, chlorine- and mineral oil free



UNI

Ref.	Contents	€
90.145.0400	400 ml	45,30

Ref.	Contents	€
90.145.0401	12 x 400 ml	408,00

> 90.150 Phantom

- NL Extreme Snijpasta, chloor- en siliconenvrij
 FR Pâte de coupe Extrême, sans chlore
 ES Pasta de corte Extreme, sin cloro
 DE Hochleistungs-Schneidpaste, Chlor- und Silikonfrei
 EN Extreme Cutting paste, chlorine-free



INOX

Ref.	Contents	€
90.150.0250	250 gr.	29,30
90.150.0251	10 x 250 gr.	257,00

Ref.	Contents	€
90.150.2500	2,5 kg.	144,25
90.150.5000	5 kg.	227,35

> 90.170 Phantom

- NL Snijwas EP (Extreme Pressure), chloorvrij
 FR Pâte de coupe EP (Haute Pression), sans chlore
 ES Cera de corte EP (Alta Presión), sin cloro
 DE Wachsstift EP (Extreme Pressure), chlorfreier
 EN Cutting wax EP (Extreme Pressure), chlorine free



UNI

Ref.	Contents	€
90.170.0300	300 gr	41,30

Ref.	Contents	€
90.170.0301	50 x 300 gr	1.750,00

> 90.180 Phantom

- NL Micro Doseer Vloeistof EP (Extreme Pressure), chloor- en mineraal-olievrij, op plantaardige basis
- FR Huile pour micro lubrification EP (Haute Pression), sans chlore et sans huile minérale, à base d'huile végétale
- ES Líquido microdosificador EP (Alta Presión), exento de cloro y aceites minerales, base vegetal
- DE Mikro-dosierflüssigkeit EP (Extreme Pressure), Chlor- und Mineralölfreier, auf pflanzlicher Basis
- EN Micro dosing liquid EP (Extreme Pressure), chlorine- and mineral oil free, vegetable based



Ref.	Contents	€
90.180.5005	5 l	130,00

> 90.210 Phantom

- NL UNI Multi Cooling Concentrate, chloor- en siliconvrij, secundair aminevrij en nitrietvrij
- FR UNI Multi Cooling Concentrate, sans chlore, exempt d'amine secondaire et de nitrite
- ES UNI Multi Cooling Concentrate, sin cloro, sin amina secundaria y sin nitritos
- DE UNI Hochleistungs- Kühlmier- Konzentrat, Chlor- und Silikonfrei, sekundäre Amin-frei und Nitrit-frei
- EN UNI Multi Cooling Concentrate, chlorine-free, secondary amine-free and nitrite-free



Ref.	Contents	€
90.210.0050	5 l	99,55
90.210.0051	4 x 5 l	390,00



- NL Keuzehulp snijolie en smeermiddelen
- FR Aide à la sélection des huiles de coupe et lubrifiants
- ES Ayuda para la selección de aceites de corte y lubricantes
- DE Auswahlhilfe Schneidöl und Schmiermittel
- EN Selection Guide for Cutting Oils and Lubricants



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