

Phantom.eu

2025



- EXPERT SELECTION
- LA SÉLECTION DES EXPERTS
- SELECCIÓN EXPERTO

www.phantom.eu



PHANTOM.EU

Knowledge platform made for metalworkers by metalworkers
More than 30,000 machining tools easy to find
Orders placed before 19.00h are shipped the same day

Kennisplatform gemaakt voor metaalbewerkers door metaalbewerkers
Meer dan 30.000 verspanende producten eenvoudig vindbaar
Bestellen voor 19.00 uur is vandaag verstuurd

Plateforme de connaissances conçue pour des spécialistes par des spécialistes
Plus de 30.000 outils coupants faciles à trouver
Les commandes passées avant 19h00 sont expédiées le jour même

Una plataforma de conocimiento hecha por metalúrgicos para metalúrgicos
Más de 30.000 herramientas de mecanizado fáciles de encontrar
Los pedidos realizados antes de las 19.00h se envían hoy mismo

Wissensplattform von Metallarbeitern für Metallarbeiter
Mehr als 30.000 Metallbearbeitungsprodukte leicht auffindbar
Bestellung vor 19.00 Uhr wird noch gleicher Tag verschickt



UNI MACHINE TAPS

First choice
Assured of approved thread
1 tap for all materials



Eerste keus
Verzekerd van goedgekeurd schroefdraad
1 tap voor alle materialen

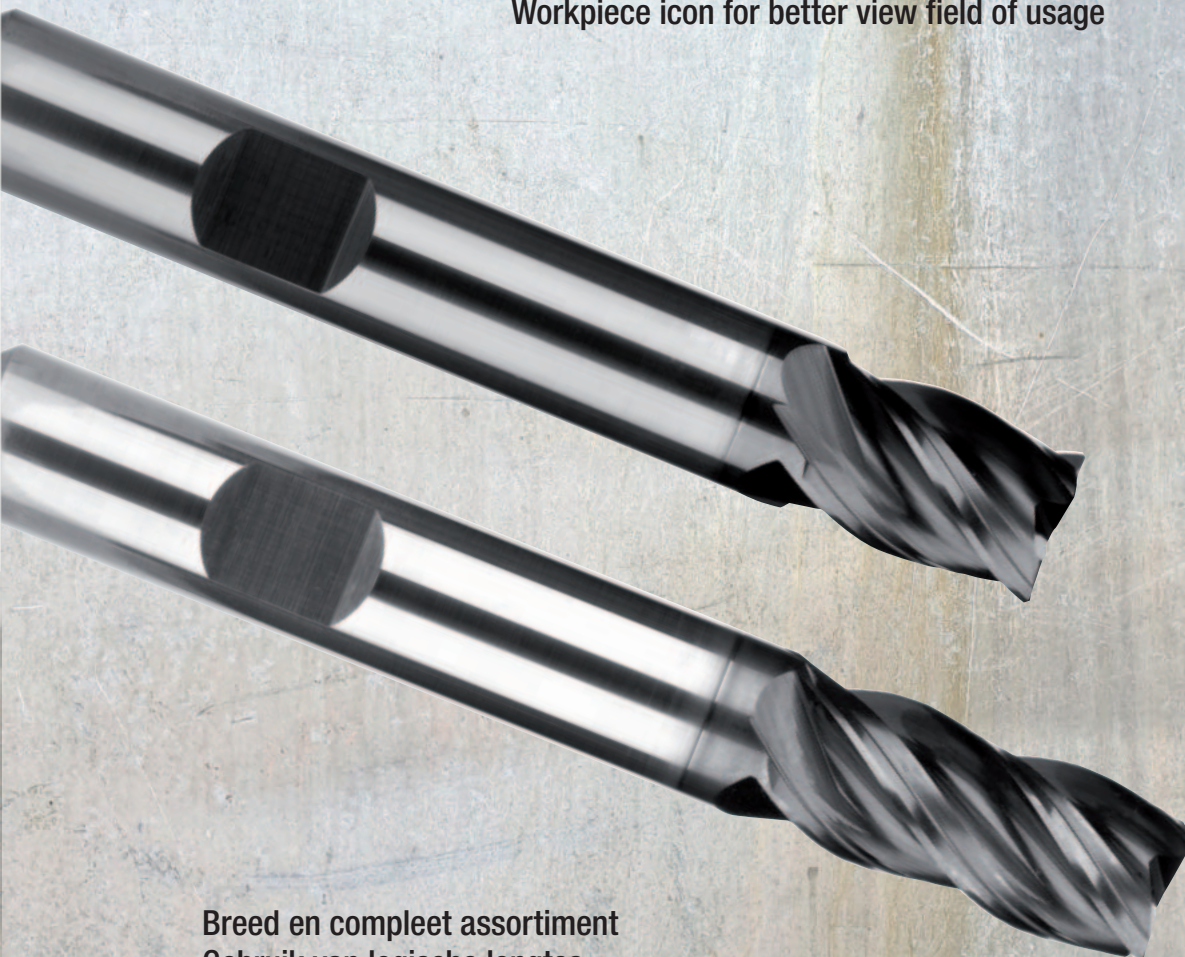
Premier choix
Filetage homologué garanti
1 taraud adapté à toutes les matières

Primera opción
Garantía de rosca homologada
1 macho para todos los materiales

Erste Wahl
Garantiert bewährte Gewinde
1 Gewindebohrer für alle Materialien

END MILLS RANGE

Wide and complete range
Use of logical lengths
Workpiece icon for better view field of usage

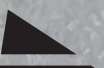


Breed en compleet assortiment
Gebruik van logische lengtes
Werkgebiedicoon voor overzicht inzetgebied

Gamme large et complète
Utilisation de longueurs logiques
Icône de plage de travail pour visualiser les zones de performance

Gama amplia y completa
Uso de longitudes lógicas
Icono claro para facilitar el uso de la fresa

Breite und vollständige Palette
Verwendung von logischen Längen
Arbeitsbereichssymbol für einen Überblick über den Arbeitsbereich

Phantom 

1 SC

1 HSS(-E)

2

3 SC

3 HSS-E

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ETC.

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ICONEN

ICONES

ICONOS

PIKTOGRAMME

ICONS

	NL	FR	ES	DE	EN		NL	FR	ES	DE	EN
HSS	HSS	HSS	HSS	HSS	HSS		Cilindrische schacht	Queue cylindrique	Mango cilíndrico	Zylinderschaft	Straight shank
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalto)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)		Cilindrische schacht met Weldon vlak	Queue cylindrique avec méplat type Weldon	Mango cilíndrico con plano de arrastre tipo Weldon	Zylinderschaft mit Mitnahmefläche Typ Weldon	Straight shank, type Weldon (DIN 6535-HA)
HSS-E PM	PM HSS-E	Acier rapide fritté de haute qualité	Acero rápido pulvimetalúrgico con	PM HSS-E	Powder Metal High-speed steel		Cilindrische schacht met Whistle-Notch	Queue cylindrique avec Whistle-Notch	Mango cilíndrico con Whistle-Notch	Zylinderschaft mit Whistle-Notch	Straight shank with Wistle Notch
HM-TIP	Hardmetaal Tip	Plaquette carbure brasée	Plaquitas de metal duro soldadas	mit HM-Schneiden	Carbide Tipped		Morse Konus Opname	Cône morse	Mango cónico	Morsekegel	Morse Taper shank
HM	Hardmetaal	Carbure monobloc	Metal duro integral	Hartmetall	Solid Carbide		Kruisaanslijping	Affûtage en croix	Afilado en Cruz	Kreuzanschliff	Splitpoint
VHM SC	Volhardmetaal	Carbure Monobloc	Metal Duro integral	Vollhartmetall	Solid Carbide		Viervlaks-aanslijping	Affûtage 4 pentes	Afilado 4 facetas	Vierflachs-Anschliff	4-facet point
MG HM	Micro-Grain volhardmetaal	Carbure Micrograin	Metal Duro Micro-Grano	Micro-Grain Vollhartmetall	Micrograin tungsten carbide		Met verdunde punt	Ame amincie	Con alma delgada	Ausgedünnte Spitze	With thinned point
OX.	Stoomontlaten	Vaporisé	Vaporizado	Dampfangelassen	Steam tempered		Meervlaks-kruis-aanslijping	Affûtage multi-pentes	Afilado multi-facetas	Mehrflachs-Kreuzanschliff	Multi-facet point
TiN	TiN geccoat	Revêtement TiN	Recubrimiento TiN	TiN Beschichtung	TiN coated		Phantom VHM-aanslijping	Affûtage Carbure Phantom	Afilado metal duro Phantom	Phantom VHM-Anschliff	Phantom SC point
TiAIN	TiAIN geccoat	Revêtement TiAIN	Recubrimiento TiAIN	TiAIN Beschichtung	TiAIN coated		Boor met 3 snijkanten	Foret à 3 lèvres	Broca con 3 facetas	Bohrer mit 3 Schneiden	Drill with 3 cutting sides
AlCrN-X	AlCrN-X geccoat	Revêtement AlCrN-X	Recubrimiento AlCrN-X	AlCrN-X Beschichtung	AlCrN-X coated		Lage snijkrachten, sneller boren	Faible force de coupe et perçage plus rapide	Baja fuerza de corte, taladro más rápido	Geringe Schnittkräfte, schnelleres Bohren	Low cutting force, faster drilling
DLC	DLC geccoat	Revêtement DLC	Recubrimiento DLC	DLC Beschichtung	DLC coated		Koelkanaal	A trous d'huile	Canal de refrigeración	Mit Kühlkanal	Coolant feed
DIN 338	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm		Tophoek	Angle au sommet	Ángulo de la punta	Spitzenwinkel	Top angle
NORM	Fabriek standaard	Standard usine	Estándar de la fábrica	Werksnorm	Factory standard		Boortolerantie	Tolérance du perçage	Tolerancia de taladrar	Bohrtoleranz	Drilltolerance
3xD	Max. boordiepte	Profondeur max. de perçage	Profundidad máx. de perforación	Max. Bohrtiefe	Max drilling depth		Uitvoering centreergat	Angle deamage	Versión ángulo avellanado	Ausführung Zentrierloch	Centre hole
N	Type N, standaard spiraaluitvoering	Type N, hélice standard	Tipo N, Versión helicoidal estándar	Type N, standard Spiralwinkel	Type N, standard spiral		Centreerhoek	Point de centrage	Ángulo de centrar	Zentrierspitze	Centr angle
>N	Spiraalsoek sterker dan standaard	Hélice plus rapide que standard	Ángulo de hélice más rápido que estándar	Spiralwinkel sterker wie Standard	Helix quicker than standard		Hoek 180°	Angle 180°	Ángulo 180°	Winkel 180°	Angle 180°
TS	Type TS, Tiefloch-spiraal	Type TS, goujure large	Tipo TS, Hélice para perforación profunda	Type TS, Tiefloch Spiral	Type TS, deep hole helix		T.b.v. roestvaststaal	Pour Inox	Para acero inoxidable	Für Rostfreier Stahl	For stainless steel
	Cilindrische schacht	Queue cylindrique	Mango cilíndrico	Zylinderschaft	Straight shank		T.b.v. aluminium	Pour aluminium	Para aluminio	Für Aluminium	For aluminium
h6	Cilindrische schacht h6	Queue cylindrique h6	Mango cilíndrico h6	Zylinderschaft h6	Straight shank h6		HP2 Universeel	Haute Performance Universel	Alta Rendimiento Universal	HP2 Universal	HP2 Universal

	 ICONEN ICONES ICONOS PIKTOGRAMME ICONS										
	NL	FR	ES	DE	EN		NL	FR	ES	DE	EN
HSS	HSS	HSS	HSS	HSS	HSS		Aantal gangen aansnijding	Nombre de filets	Número de hilos	Anzahl Gangen Anschnitt	Number of lead chamfers
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalto)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)		Koelkanaal	A trous d'huile	Canal de refrigeración	Mit Kühlkanal	Coolant feed
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)		Doorlopende gaten	Trou débouchant	Agujero pasante	Durchgangslöcher	Through holes
MG HM	Micro-Grain volhardmetaal	Carbure micrograin	Metal duro micrograno	Micro-Grain Vollhartmetall	Micrograin tungsten carbide		Blinde gaten	Trou borgne	Agujero ciego	Sacklöcher	Blind holes
M	Metrisch	Métrique	Métrica	Metrisch	Metric		Max. draadlengte 2xD	Profondeur max. du filetage 2xD	Profundidad máx. de roscar 2xD	Max. Gewindelänge 2xD	Max. thread length (2 x D)
MF	Metrisch Fijn	Métrique pas fin	Métrica Fina	Metrisch Fein	Metric Fine		Max. draadlengte 1,5xD	Profondeur max. du filetage 1,5xD	Profundidad máx. de roscar 1,5xD	Max. Gewindelänge 1,5xD	Max. thread length (1.5 x D)
	Tophoek schroefdraad	Angle au sommet	Ángulo de punta de la rosca	Flankenwinkel	Point angle		Genitreerd	Nitruré	Nitrurado	Nitriert	Nitrated
OX.	Stoomontlaten	Vaporisé	Vaporizado	Dampfangelassen	Steam tempered		Stoomontlaten	Vaporisé	Vaporizado	Dampfangelassen	Steam tempered
TiN	TiN gecoat	Revêtement TiN	Recubrimiento TiN	TiN Beschichtung	TiN coated		TiN gecoat	Revêtement TiN	Recubrimiento TiN	TiN Beschichtung	TiN coated
TiCN	TiCN gecoat	Revêtement TiCN	Recubrimiento TiCN	TiCN Beschichtung	TiCN coated		TiCN gecoat	Revêtement TiCN	Recubrimiento TiCN	TiCN Beschichtung	TiCN coated
HARD LUBE	HARDLUBE-gecoat	Revêtement HARDLUBE	Recubrimiento HARDLUBE	HARDLUBE Beschichtung	HARDLUBE coated		HARDLUBE-gecoat	Revêtement HARDLUBE	Recubrimiento HARDLUBE	HARDLUBE Beschichtung	HARDLUBE coated
DIN 371	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm		T.b.v. roestvast-staal	Pour Inox	Para acero inoxidable	Für Rostfreier Stahl	For stainless steel
	Fabriek standaard	Standard usine	Estándar de la fábrica	Werksnorm	Factory standard		T.b.v. aluminium	Pour aluminium	Para aluminio	Für Aluminium	For aluminium
ISO 2 6H	ISO norm	Norme ISO	Norma ISO	ISO Norm	ISO norm		Universeel	Universel	Universal	Universal High Performance	Universal
2,5xD	Max. draadlengte	Profondeur max. de taraudage	Profundidad máx. de roscar	Max. Gewindelänge	Max. thread length		High Performance Universeel	Haute Performance Universel	Alta Rendimiento Universal	High Performance Universal	High Performance Universal
	Spiraalsoek	Angle d'hélice	Angulo de hélice	Spiralwinkel	Spiral angles		Cilindrische schacht DIN 6535-HA	Queue cylindrique DIN 6535-HA	Mango cilíndrico DIN 6535-HA	Zylinderschaft DIN 6535-HA	Straight shank DIN 6535-HA
	Met schilaansnijding	Coupe GUN	Con entrada corregida (GUN)	Schälanschnitt	GUN nosed						

1 SC

1 HSS-E

2

3 SC

3 HSS-E

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ETC.

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ICONEN

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PIKTOGRAMME

ICONS

	NL	FR	ES	DE	EN
	2 snijkanten, centrumsnijdend	2 dents, coupe au centre	2 dientes, corte con centro	2 Schneiden, Zentrumschneidend	2 flutes, centre cutting
	3 snijkanten, centrumsnijdend	3 dents, coupe au centre	3 dientes, corte con centro	3 Schneiden, Zentrumschneidend	3 flutes, centre cutting
	4 Snijkanten, centrumsnijdend	4 dents, coupe au centre	4 dientes, con corte centro	4 Schneiden, Zentrumschneidend	4 flutes, centre cutting
	4 Snijkanten, met ongelijke tandverdeling	4 dents, avec denture à pas différentiel	4 dientes, con paso irregular	4 Schneiden, mit ungleicher Zahn-teilung	4 flutes, with irregular pitch
	5 Snijkanten, met ongelijke tandverdeling	5 dents, avec denture à pas différentiel	5 dientes, con paso irregular	5 Schneiden, mit ungleicher Zahn-teilung	5 flutes, with irregular pitch
	6 snijkanten, centrumsnijdend	6 dents, coupe au centre	6 dientes, corte con centro	6 Schneiden, Zentrumschneidend	6 flutes, centre cutting
	2 snijkanten, volradius	2 dents, à rayon complet	2 dientes, con radio completo	2 Schneiden, Vollradius	2 flutes, full radius
	Ongelijke spiraalhoek	Avec angles d'hélice variables	Con ángulo de hélice desigual	Mit ungleichen Spiralwinkel	With unequal spiral angles
VHM SC	Volhardmetaal	Carbure monobloc	Metal duro integral	Vollhartmetall	Solid Carbide
MG HM	Micro-Grain volhardmetaal	Carbure micrograin	Metal duro micrograno	Micro-Grain Vollhartmetall	Micrograin tungsten carbide
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalto)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)
TiAIN	TiAIN geccoat	Revêtement TiAIN	Recubrimiento TiAIN	TiAIN Beschichtung	TiAIN coated
AlTiN X	AlTiN-X geccoat	Revêtement AlTiN-X	Recubrimiento AlTiN-X	AlTiN-X Beschichtung	AlTiN-X coated
AlCrN-X	AlCrN-X geccoat	Revêtement AlCrN-X	Recubrimiento AlCrN-X	AlCrN-X Beschichtung	AlCrN-X coated
HR	Ronde tand, fijn	Profil rond, pas fin	Perfil redondo, paso fino	Feiner Verzahnung	Fine teeth
WR	Ronde tand, grof	Profil rond, pas ébauche	Perfil redondo	Runder Verzahnung	Rounded profile
DIN 6527	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm
NORM	Fabriek standaard	Standard usine	Estándar de la fábrica	Werksnorm	Factory standard
	Snijkantradius	Rayon de coupe	Radio de corte	Radius am Schneidenecke	Protective chamfer

	NL	FR	ES	DE	EN
	Spiraalhoek	Angle d'Hélice	Angulo de hélice	Spiralwinkel	Helix angle
	Cilindrische schacht met Weldon vlak	Queue cylindrique avec méplat type Weldon	Mango cilíndrico con plano de arrastre tipo Weldon	Zylinderschaft mit Mitnahmefläche Tyo Weldon	Straight shank, type Weldon (DIN 6535-HA)
	Cilindrische schacht h6	Queue cylindrique h6	Mango cilíndrico h6	Zylinderschaft h6	Straight shank h6
	Tolerantie radius	Tolérance rayon	Tolerancia radio	Toleranz Radius	Tolerances radiu
	Tolerantie diameter	Tolérance diamètre	Tolerancia diámetro	Toleranz Durchmesser	Tolerance diameter
INOX	T.b.v. roestvaststaal	Pour Inox	Para acero inoxidable	Für Rostfreier Stahl	For stainless steel
ALU	T.b.v. aluminium	Pour aluminium	Para aluminio	Für Aluminium	For aluminium
UNI	Universeel	Universel	Universal	Universal High Performance	Universal
	Interpolair frezen	Interpolation	Mecanizado por interpolación	Zirkular Fräsen	Interpolation Drilling
	Graveren	Gravure	Grabado	Gravieren	Engraving
	Mantelfrezen met fasen	Chanfreins longitudinaux	Chaflanes Longitudinales	Konturfasen	Longitudinal Chamfers
	Fase Frezen	Chanfreins longitudinaux	Chaflanes Longitudinales	Konturfasen	Longitudinal Chamfers
	Boren en aanschuinen	Chanfreins directs	Chaflanes Directos	Direkt Fasen	Direct Chamfers
	V-Sleuf frezen	Rainurage en V	Ranura en "V"	"V"-Nuten Fräsen	V-Grooving
	Mantelfrezen	Contournage	Contorneado	Konturfäsen	Countouring
	Centeren	Centrage	Centrado	Zentrieren	Centering
	Aanschuinen	Chanfreinage	Chaflanado	Fasen	Chamfering
	Boren	Perçage	Taladrado	Bohren	Drilling

 ICONEN ICONES ICONOS PIKTOGRAMME ICONS											
	NL	FR	ES	DE	EN		NL	FR	ES	DE	EN
HSS-E	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)	HSS-E (5% Cobalt)		Verzinkfrees met 1 snijkant	Fraise à chanfreiner à un dent	Avellanador con 1 diente	Kegelsenker mit 1 Schneide	Countersink with single flute
HSS-E 8%	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)	HSS-E (8% Cobalt)		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 3 flutes, for milling applications
HM	Hardmetaal	Carbure monobloc	Metal duro integral	Hartmetall	Solid Carbide		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 drilling applications
VHM SC	Volhardmetaal	Carbure monobloc	Metal duro integral	Vollhartmetall	Solid Carbide		Variabele tandsteek	A pas variable	Paso variable	Variabler Verzahnung	Variable pitch
MG HM	Micro-Grain volhardmetaal	Carbure micrograin	Metal duro micrograno	Micro-Grain Vollhartmetall	Micrograin tungsten carbide		Verzinkhoek	Angle de chanfreinage	Ángulo de avellanar	Senkwinkel	Countersinking angle
TiAIN	TiAIN gecoat	Revêtement TiAIN	Recubrimiento TiAIN	TiAIN Beschichtung	TiAIN coated		Parabolisch geslepen spaankamer	Goujure parabolique	Labios parabólicos	Parabolisch gesliefen Spanraum	Parabolic cut chip chamber
AlCrN-X	AlCrN-X gecoat	Revêtement AlCrN-X	Recubrimiento AlCrN-X	AlCrN-X Beschichtung	AlCrN-X coated		Recht geslepen spaankamer	Goujure droite	Labios rectos	Gerade gesliefen Spanraum	Straight chiproom
DIN 335-C	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm		Cilindrische schacht	Queue cylindrique	Mango cilindrico	Zylinderschaft	Straight shank
NORM	Fabriek standaard	Standard usine	Estándar de la fábrica	Werknorm	Factory standard		Schacht met drie platte vlakken	Queue à 3 méplats	Mango con 3 chaflanes	Zylinderschaft mit drei platten Flächen	Shank with 3 flat surfaces
	Verzinkfrees met schuin gat	Fraise à chanfreiner à trou	Avellanador con agujero	Kegelsenker mit schräger Bohrung	Countersink with through holes						

  ICONEN ICONES ICONOS PIKTOGRAMME ICONS											
	NL	FR	ES	DE	EN		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
VHM SC	Volhardmetaal	Carbure monobloc	Metal duro integral	Vollhartmetall	Solid Carbide		Passing	Tolérance	Tolerancia	Passung	Tolerance
DIN 212-B	DIN norm	Norme DIN	Norma DIN	DIN Norm	DIN norm		Tolerantie diameter	Tolérance diamètre	Tolerancia diámetro	Toleranz Durchmesser	Tolerance diameter
	Cilindrische schacht h8	Queue cylindrique h8	Mango cilindrico h8	Zylinderschaft h8	Straight shank h8						

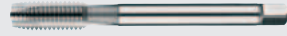
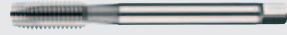
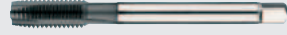
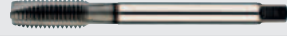
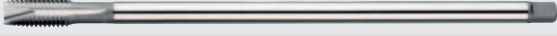
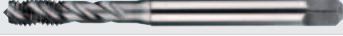
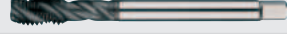
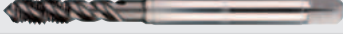
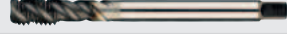
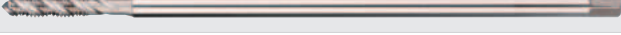
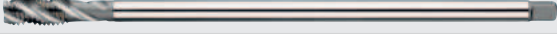
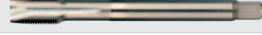
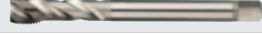
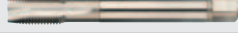
NL Index
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EN Index

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

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

P= pagina
P= page
P= página
P= Seite

> 11.245	Phantom	DIN 6537-L	5xD		P	K		H			P. 8
> 11.250	Phantom	DIN 6537-K	3xD	UNI	P	M	K	N	S	H	P. 8
> 11.252	INTERNATIONAL TOOLS	DIN 6537-K	3xD	ECO PRO	P	M	K	N	S	H	P. 9
> 11.253	Phantom	DIN 6537-K	3xD	UNI	P	M	K	N	S	H	P. 9
> 11.262	Phantom	DIN 6537-K	3xD	INOX	P	M			S		P. 10
> 11.270	Phantom	DIN 6537-L	5xD	UNI	P	M	K	N	S	H	P. 11
> 11.272	INTERNATIONAL TOOLS	DIN 6537-L	5xD	ECO PRO	P	M	K	N	S	H	P. 11
> 11.273	Phantom	DIN 6537-L	5xD	UNI	P	M	K	N	S	H	P. 12
> 11.279	Phantom	DIN 6537-L	5xD	ALU				N			P. 13
> 11.282	Phantom	DIN 6537-L	5xD	INOX	P	M			S		P. 13
> 11.295	Phantom	NORM	8xD	UNI	P	M	K	N	S	H	P. 14
> 11.305	Phantom	NORM	10xD	UNI	P	M	K	N	S	H	P. 14
> 11.310	Phantom	NORM	15xD	UNI	P	M	K	N	S	H	P. 15
> 11.330	Phantom	NORM	5xD	UNI	P	M	K	N	S	H	P. 15
> 11.335	Phantom	NORM	8xD	UNI	P	M	K	N	S	H	P. 16
> 15.144	Phantom	DIN 333-A		P	M						P. 16
> 15.624	Phantom	DIN 6537-HB		P	M	K	N	S	H		P. 16
> 15.724	Phantom	DIN 6537-HB		P	M	K	N	S	H		P. 17
> 15.764	Phantom	DIN 6537-HB		P	M	K	N	S	H		P. 17
> 11.168	Phantom	HSS-E DIN 1897	HP2 UNI	P	M	K	N				P. 18
> 11.450	Phantom	HSS DIN 338		P	M	K	N				P. 18
> 11.451	Phantom	HSS DIN 338		P	M	K	N				P. 20
> 11.461	Phantom	HSS DIN 338		P	M	K	N				P. 20
> 11.500	Phantom	HSS-E DIN 338		P	M	K	N				P. 21
> 11.510	Phantom	HSS-E 8% DIN 338		P	M	K	N	S			P. 22
> 11.568	Phantom	HSS-E DIN 338	HP2 UNI	P	M	K	N				P. 23
> 11.760	Phantom	HSS-E DIN 338	INOX	P	M			S			P. 24
> 11.764	Phantom	HSS-E DIN 338	INOX	P	M			S			P. 24
> 11.920	Phantom	HSS DIN 1869	TS	P	M	K	N				P. 25
> 11.940	Phantom	HSS-E DIN 1869	TS	P	M	K	N				P. 26
> 12.440	Phantom	HSS DIN 345	DIN 228-B	P	M	K	N				P. 26
> 12.500	Phantom	HSS-E DIN 345	DIN 228-B	P	M	K	N				P. 27
> 15.100	Phantom	HSS DIN 333-A		P		K	N				P. 27

> 19.145	Phantom	HSS	DIN 338	P M K N			P. 28
> 19.146	Phantom	HSS	DIN 338	P M K N			P. 28
> 19.147	Phantom	HSS	DIN 338	P M K N			P. 29
> 19.150	Phantom	HSS-E	DIN 338	P M K N			P. 29
> 19.176	Phantom	HSS-E	DIN 338	INOX P M S			P. 29
> 22.200	Phantom	M	DIN 371	P M K N S			P. 30
> 22.201	Phantom	M	DIN 376	P M K N S			P. 30
> 22.210	Phantom	M	DIN 371	P M K N S			P. 31
> 22.211	Phantom	M	DIN 376	P M K N S			P. 31
> 22.230	Phantom	M	DIN 371	P M K N S			P. 31
> 22.231	Phantom	M	DIN 376	P M K N S			P. 32
> 22.240	Phantom	M	DIN 371	P M K N S			P. 32
> 22.241	Phantom	M	DIN 376	P M K N S			P. 32
> 22.268	Phantom	M	DIN 371	P M K N S			P. 33
> 22.269	Phantom	M	DIN 376	P M K N S			P. 33
> 22.350	Phantom	M	NORM	P M K N S			P. 33
> 22.351	Phantom	M	NORM	P M K N S			P. 34
> 23.300	Phantom	M	DIN 371	P M K N S			P. 34
> 23.301	Phantom	M	DIN 376	P M K N S			P. 34
> 23.320	Phantom	M	DIN 371	P M K N S			P. 35
> 23.321	Phantom	M	DIN 376	P M K N S			P. 35
> 23.324	Phantom	M	DIN 371	P M K N S			P. 35
> 23.325	Phantom	M	DIN 376	P M K N S			P. 36
> 23.368	Phantom	M	DIN 371	P M K N S			P. 36
> 23.369	Phantom	M	DIN 376	P M K N S			P. 36
> 23.370	Phantom	M	NORM	P M K N S			P. 37
> 23.371	Phantom	M	NORM	P M K N S			P. 37
> 23.620	Phantom	MF	DIN 374	P M K N S			P. 37
> 23.840	Phantom	MF	DIN 374	P M K N S			P. 38
> 25.097	Phantom	BSP G	DIN 5156	P M K N S			P. 39
> 25.297	Phantom	BSP G	DIN 5156	P M K N S			P. 39

> 36.242	INTERNATIONAL TOOLS		DIN 6527	ECO PRO	P	M	K	N	S			NEW P. 52
> 36.256	Phantom		UNI NORM		P	M	K	N	S			P. 52
> 36.285	Phantom		HRC NORM		P					H		P. 52
> 32.220	Phantom		DIN 327-B		P			N				P. 53
> 33.220	Phantom		DIN 844-B		P			N				P. 53
> 41.510	Phantom	A	Ø6									P. 54
> 41.520	Phantom	B	Ø6									P. 54
> 41.530	Phantom	C	Ø6									P. 55
> 41.560	Phantom	F	Ø6									P. 55
> 41.610	Phantom	K	Ø6									P. 55
> 42.548	Phantom	HSS-E		90°	P	M	K	N	S			NEW P. 56
> 42.558	Phantom	HSS-E		90°	P	M	K	N	S			NEW P. 56
> 42.560	Phantom	MG HM		90°	P	M	K	N	S	H		P. 56
> 42.567	Phantom	HSS-E		90°	P	M	K	N	S			P. 57
> 42.582	Phantom	HSS-E 8%		90°	P	M	K	N	S	H		NEW P. 57
> 49.150	Phantom	VHM SC	Ø6									P. 57
> 49.264	Phantom	HSS-E		90°	P	M	K	N	S			NEW P. 58
> 49.266	Phantom	HSS-E		90°	P	M	K	N	S			NEW P. 58
> 51.320	Phantom	HSS-E	DIN 212 B/D	H7	P	M	K	N	S			P. 59
> 51.324	Phantom	HSS-E	DIN 212 B/D	H7	P	M	K	N	S			P. 59
> 51.330	Phantom	MG HM	DIN 212 B/D	H7	P	M	K	N	S			P. 59
> 51.334	Phantom	MG HM	DIN 212-D	H7	P	M	K	N	S			P. 60
> 51.350	Phantom	HSS-E	DIN 212 B/D	x0,01	P	M	K	N	S			P. 60
> 51.360	Phantom	MG HM	NORM	x0,01	P	M	K	N	S			P. 61
> 63.200	Phantom	HSS	DIN 1837-A	A	P	M	K					P. 62
> 63.220	Phantom	VHM SC	DIN 1837-A	A	P	M	K	N	S			P. 63
> 63.250	Phantom	HSS	DIN 1838-B	B	P	M	K	N				P. 64
> 63.270	Phantom	VHM SC	DIN 1838-B	A	P	M	K	N	S			P. 65
> 63.400	Phantom	HSS	OX.	C+BW	P		K	N				P. 66
> 63.424	Phantom	HSS-E	TiAlN	C+BW	P	M	K	N				P. 67
> 63.450	Phantom	HM-TIP		α 5°				N				P. 67
> 63.460	Phantom	HM-TIP		α-5°				N				P. 67

> 66.110	Phantom	BIM HSS		P	K	N			P. 68
> 66.130	Phantom	BIM HSS	KASTO	P	K	N			P. 68
> 66.160	Phantom	BIM 8% Co	INOX	P	M	K	N		P. 69
> 66.450	Phantom	BIM 8% Co	VARI $\lambda \alpha 0^\circ$	P	M	K	N	S 	P. 70
> 66.460	Phantom	BIM 8% Co	VARI $\lambda \alpha 10^\circ$	P	M	K	N		P. 70
> 66.580	Phantom	BIM 10% Co	VARI $\lambda \alpha 15^\circ$	P	M			S 	P. 71
> 66.700	Phantom	BIM 8% Co	VARI $\lambda \alpha 5^\circ$	P	M	K	N	S 	P. 71
> 75.100	Phantom								P. 72
> 75.103	Phantom								P. 72
> 75.106	Phantom								P. 72
> 75.109	Phantom								P. 73
> 75.115	Phantom								P. 73
> 75.121	Phantom								P. 74
> 75.125	Phantom								P. 74
> 75.129	Phantom								P. 75
> 75.133	Phantom								P. 75
> 75.174	Phantom								P. 76
> 75.197	Phantom								P. 76
> 75.600	Phantom								P. 77
> 75.620	Phantom							 NEW	P. 78
> 75.650	Phantom								P. 78
> 75.680	Phantom								P. 79
> 75.695	Phantom								P. 79
> 75.697	Phantom								P. 79
> 75.698	Phantom								P. 79
> 81.200	Phantom	TYPE A							P. 80
> 81.230	Phantom	TYPE P		0,04					P. 80
> 81.250	Phantom	TYPE XP		0,04					P. 80
> 81.300	Phantom	TYPE XP	DIN 228-B 	0,04					P. 81
> 81.303	Phantom	TYPE XP	SK 	0,04					P. 81
> 81.304	Phantom	TYPE XP	SK 	0,04					P. 82
> 81.306	Phantom	TYPE XP	MAS-BT 	0,04					P. 82
> 81.540	Phantom	(AUTO) REVERSAL	DIN 228-B	C	T				P. 83
> 81.545	Phantom	(AUTO) REVERSAL		C	T				P. 83
> 81.613	Phantom		SK	C	T				P. 84



1 SC



1 HSS-E



2



3 SC



3 HSS-E



4



5



6



7



8

ETC.

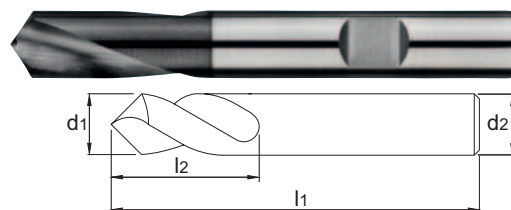
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> 81.614	Phantom	SK	C				P. 84
> 81.616	Phantom	MAS-BT	C				P. 85
> 81.633	Phantom						P. 85
> 81.636	Phantom						P. 85
> 81.639	Phantom						P. 86
> 81.641	Phantom						P. 86
> 81.684	Phantom	ER	SK	MICRO			P. 86
> 81.686	Phantom	ER	MAS-BT	MICRO			P. 87
> 81.687	Phantom	ER	HSK-A	MICRO			P. 87
> 82.153	Phantom	DIN 1835-B	SK		DIN 6359		P. 88
> 82.154	Phantom	DIN 1835-B	SK		DIN 6359		P. 88
> 82.156	Phantom	DIN 1835-B	MAS-BT		DIN 6359		P. 89
> 82.157	Phantom	DIN 1835-B	HSK-A		DIN 6359		P. 89
> 82.513	Phantom	ER	SK		ISO 15488		P. 90
> 82.514	Phantom	ER	SK		ISO 15488		P. 90
> 82.516	Phantom	ER	MAS-BT		ISO 15488		P. 90
> 82.517	Phantom	ER	HSK-A		ISO 15488		P. 91
> 82.816	Phantom	ER-16	DIN 6499-B		0,015		P. 91
> 82.817	Phantom	ER-16	DIN 6499-B		0,005		P. 92
> 82.820	Phantom	ER-20	DIN 6499-B		0,015		P. 92
> 82.825	Phantom	ER-25	DIN 6499-B		0,015		P. 92
> 82.826	Phantom	ER-25	DIN 6499-B		0,005		P. 93
> 82.832	Phantom	ER-32	DIN 6499-B		0,015		P. 93
> 82.833	Phantom	ER-32	DIN 6499-B		0,005		P. 93
> 82.840	Phantom	ER-40	DIN 6499-B		0,015		P. 94
> 82.841	Phantom	ER-40	DIN 6499-B		0,005		P. 94
> 82.880	Phantom	ER-16	DIN 6499		0,015		P. 94
> 82.885	Phantom	ER-25	DIN 6499		0,015		P. 95
> 82.918	Phantom	ER-16	DIN 6499		0,008		P. 95
> 82.927	Phantom	ER-25	DIN 6499		0,008		P. 95
> 82.934	Phantom	ER-32	DIN 6499		0,008		P. 95
> 82.942	Phantom	ER-40	DIN 6499		0,008		P. 96
> 84.170	INTERNATIONAL TOOLS	B	DIN 228-B		DIN 238		P. 96
> 84.171	INTERNATIONAL TOOLS	J	DIN 228-B				P. 96
> 84.172	INTERNATIONAL TOOLS		DIN 228-B				P. 97

> 84.203	Phantom	DIN 228-B	SK	DIN 6383			P. 97
> 84.204	Phantom	DIN 228-B	SK	DIN 6383			P. 97
> 84.206	Phantom	DIN 228-B	MAS-BT	DIN 6383			P. 98
> 88.318	BISON						P. 98
> 88.340	Phantom						P. 98
> 88.440	TORAX						P. 99
> 88.470	TORAX						P. 99
> 88.472	TORAX						P. 100
> 88.474	TORAX						P. 100
> 88.475	TORAX						P. 100
> 88.476	TORAX						P. 100
> 88.477	TORAX						P. 101
> 88.478	TORAX						P. 101
> 88.870	INTERNATIONAL TOOLS						P. 101
> 89.250	Phantom	DIN 6499-B	ER	0,015			P. 102
> 89.252	Phantom	DIN 6499-B	ER	0,005			P. 102
> 89.264	Phantom	DIN 6499	ER	0,008			P. 102
> 89.282	Phantom	DIN 6499-B	ER	0,015			P. 103
> 90.130	Phantom	INOX			P M K N S		P. 104
> 90.150	Phantom	INOX			P M K N S		P. 104

> 15.724 Phantom

NL Volhardmetaal NC-Centreerboor TiAIN, 120°
 FR Foret à pointer NC Carbure Monobloc TiAIN, 120°
 ES Broca de puntear NC Metal Duro Integral TiAIN, 120°
 DE Vollhartmetall NC Anbohrer TiAIN, 120°
 EN Solid Carbide NC Spotting Drill TiAIN, 120°



P 12	P 13	P 14	H 15	M 21	M 22	K 31	K 32	N 42	N 43	N 51	N 61	S 71	S 72
≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	HRC	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Mg	Cu	PVC	Ni/Co	Ti

70-80 F	34-70 F	25-35 B	10-28 A	14-22 E	15-20 E	72-90 D	70-80 D	90-140 G	80-100 F	120-180 E	120-150 G	8-10 B	15-20 E
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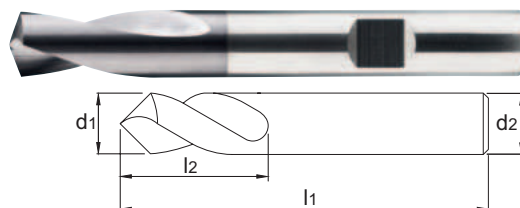
Ref.	d1	d2	l1	l2	€
15.724.0200	2	2	32	8	29,50
15.724.0300	3	3	32	8	29,50
15.724.0400	4	4	40	10	30,70
15.724.0500	5	5	50	13	34,10

Ref.	d1	d2	l1	l2	€
15.724.0600	6	6	50	13	41,35
15.724.0800	8	8	60	23	60,45
15.724.1000	10	10	70	24	81,85
15.724.1200	12	12	70	24	102,10

Ref.	d1	d2	l1	l2	€
15.724.1600	16	16	75	29	189,95
15.724.2000	20	20	100	35	332,00

> 15.764 Phantom

NL Volhardmetaal NC-Centreerboor TiAIN, 142°
 FR Foret à pointer NC Carbure Monobloc TiAIN, 142°
 ES Broca de puntear NC Metal Duro Integral TiAIN, 142°
 DE Vollhartmetall NC Anbohrer TiAIN, 142°
 EN Solid Carbide NC Spotting Drill TiAIN, 142°



P 12	P 13	P 14	H 15	M 21	M 22	K 31	K 32	N 42	N 43	N 51	N 61	S 71	S 72
≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	HRC	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Mg	Cu	PVC	Ni/Co	Ti

70-80 F	34-70 F	25-35 B	10-28 A	14-22 E	15-20 E	72-90 D	70-80 D	90-140 G	80-100 F	120-180 E	120-150 G	8-10 B	15-20 E
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Ref.	d1	d2	l1	l2	€
15.764.0300	3	3	45	10	30,95
15.764.0400	4	4	50	12	32,10
15.764.0500	5	5	50	15	35,75

Ref.	d1	d2	l1	l2	€
15.764.0600	6	6	50	18	43,40
15.764.0800	8	8	60	18	63,40
15.764.1000	10	10	70	23	85,80

Ref.	d1	d2	l1	l2	€
15.764.1200	12	12	70	24	107,00
15.764.1600	16	16	80	26	190,20



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

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> 15.100 Phantom

Ref.	d1	d2	l1	l2	€
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
15.100.3180	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

Ref.	d1	d2	l1	l2	€
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

> 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 ≤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	€
19.145.1000	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)	1.055,00

> 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						
				≥1,6					
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	48-60 E	45-50 G	25-40 D	22-28 D

Ref.	Type	Ø mm	€
19.146.1000	11.451	1-10 mm x 0,5 mm	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						
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	15-20	25-30	48-60	45-50	25-40	22-28

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

> 19.150 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 ≤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
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)	1.616,00

> 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 ≤850 N/mm²	M 22 INOX >850 N/mm²	S 71 Ni/Co	S 72 Ti		
12-16	14-18	12-16	6-8	6-10		

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

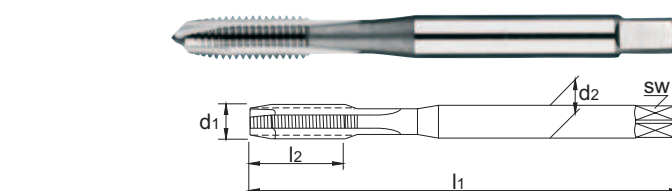
Ref.	Type	Ø mm	€
19.176.1300	11.760	1-13 mm x 0,5 mm	331,00

> 22.210 Phantom

NL UNI HSS-E Machinetap Metrisch, Overmaats
FR Taraud machine HSS-E UNI Métrique, surcoté
ES Macho máquina HSS-E UNI Métrica, sobremedida
DE UNI HSS-E Maschinengewindebohrer Metrisch, Übermaß
EN UNI HSS-E Machine Tap Metric Coarse, Oversized

HSS-E	M		DIN 371	3xD		+0,1 +0,2	ISO 2 6H	UNI		
										
≤500 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co	Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
22.210.0510	M5+0,1	0.8	70	16	6	4.9	21,75
22.210.0610	M6+0,1	1	80	19	6	4.9	21,75
22.210.0620	M6+0,2	1	80	19	6	4.9	21,75



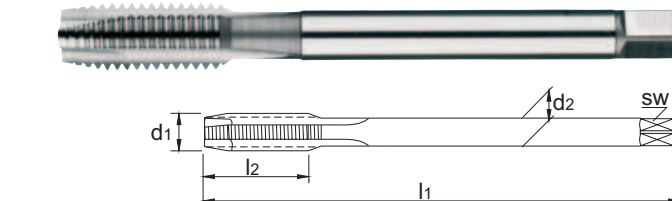
Ref.	d1	P	l1	l2	d2	sw	€
22.210.0820	M8+0,2	1.25	90	22	8	6.2	29,05
22.210.1020	M10+0,2	1.5	100	24	10	8	34,40

> 22.211 Phantom

NL UNI HSS-E Machinetap Metrisch, Overmaats
FR Taraud machine HSS-E UNI Métrique, surcoté
ES Macho máquina HSS-E UNI Métrica, sobremedida
DE UNI HSS-E Maschinengewindebohrer Metrisch, Übermaß
EN UNI HSS-E Machine Tap Metric Coarse, Oversized

HSS-E	M	 60°	DIN 376	3xD	 FormB 3,5-5	+0,1 +0,2	ISO 2 6H	UNI		
 P 11	 P 12	 P 13	 M 21	 K 31	 K 32	 N 41	 N 42	 N 51	 S 71	 S 72
≤500 N/mm ²	≤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	€
22.211.1220	M12+0,2	1.75	110	28	9	7	46,35
22.211.1420	M14+0,2	2	110	30	11	9	55,50



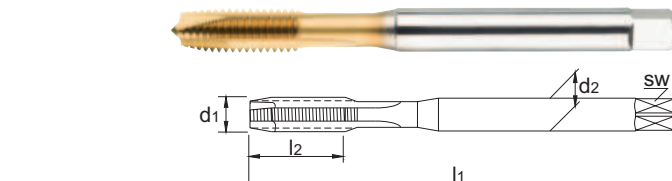
Ref.	d1	P	l1	l2	d2	sw	€
22.211.1610	M16+0,1	2	110	32	12	9	68,80
22.211.1620	M16+0,2	2	110	32	12	9	68,80

> 22.230 Phantom

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

HSS-E	M		TiN	DIN 371	3xD		FormB 3,5-5	ISO 2 6H	UNI		
P 11	P 12	P 13	M 21	M 22	K 31	K 32	N 41	N 42	N 51	S 71	S 72
≤500 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co	Ti
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8	2-8

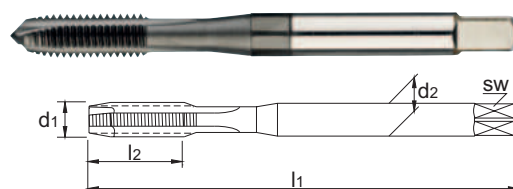
Ref.	d1	P	l1	l2	d2	sw	€
22.230.0200	M2	0.4	45	8	2.8	2.1	29,40
22.230.0250	M2,5	0.45	50	9	2.8	2.1	27,75
22.230.0300	M3	0.5	56	11	3.5	2.7	23,86
22.230.0400	M4	0.7	63	13	4.5	3.4	24,76
22.230.0500	M5	0.8	70	16	6	4.9	25,15



Ref.	d1	P	l1	l2	d2	sw	€
22.230.0600	M6	1	80	19	6	4.9	25,80
22.230.0700	M7	1	80	19	7	5.5	31,60
22.230.0800	M8	1.25	90	22	8	6.2	30,35
22.230.0900	M9	1.25	90	22	9	7	35,75
22.230.1000	M10	1.5	100	24	10	8	35,75

> 22.268 Phantom

NL HP2 UNI HSS-E PM Machinetap Metrisch, HARDLUBE
 FR Taraud machine HSS-E PM HP2 UNI Métrique, HARDLUBE
 ES Macho máquina HSS-E PM HP2 UNI Métrica, HARDLUBE
 DE HP2 UNI HSS-E PM Maschinengewindebohrer Metrisch, HARDLUBE
 EN HP2 UNI HSS-E PM Machine Tap Metric Coarse, HARDLUBE



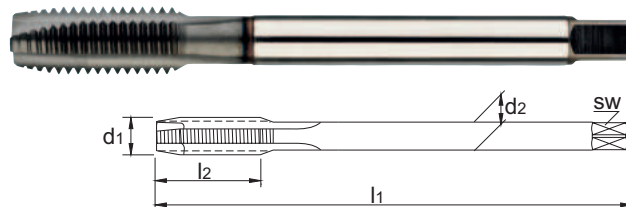
HSS-E PM	M	60° 	HARD LUBE	DIN 371	3xD	 FormB 3,5-5	ISO 2 6H	HP2 UNI			
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	S 71 Ni/Co	S 72 Ti
15-20	15-20	8-15	8-15	8-15	8-15	20-25	20-25	20-25	20-25	5-12	5-12

Ref.	d1	P	l1	l2	d2	sw	€
22.268.0300	M3	0.5	56	11	3.5	2.7	32,60
22.268.0400	M4	0.7	63	13	4.5	3.4	33,25
22.268.0500	M5	0.8	70	16	6	4.9	34,55

Ref.	d1	P	l1	l2	d2	sw	€
22.268.0600	M6	1	80	19	6	4.9	40,95
22.268.0800	M8	1.25	90	22	8	6.2	46,10
22.268.1000	M10	1.5	100	24	10	8	65,25

> 22.269 Phantom

NL HP2 UNI HSS-E PM Machinetap Metrisch, HARDLUBE
 FR Taraud machine HSS-E PM HP2 UNI Métrique, HARDLUBE
 ES Macho máquina HSS-E PM HP2 UNI Métrica, HARDLUBE
 DE HP2 UNI HSS-E PM Maschinengewindebohrer Metrisch, HARDLUBE
 EN HP2 UNI HSS-E PM Machine Tap Metric Coarse, HARDLUBE



HSS-E PM	M	60° 	HARD LUBE	DIN 376	3xD	 FormB 3,5-5	ISO 2 6H	HP2 UNI			
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	S 71 Ni/Co	S 72 Ti
15-20	15-20	8-15	8-15	8-15	8-15	20-25	20-25	20-25	20-25	5-12	5-12

Ref.	d1	P	l1	l2	d2	sw	€
22.269.1200	M12	1.75	110	28	9	7	74,20
22.269.1400	M14	2	110	30	11	9	107,55

Ref.	d1	P	l1	l2	d2	sw	€
22.269.1600	M16	2	110	32	12	9	95,30
22.269.2000	M20	2.5	140	34	16	12	156,35



NL Hardlube gecoate HP2 Machinetappen in actie
 FR Les tarauds machine HP2 revêtus de HARDLUBE en action
 ES Los machos de roscar a máquina con recubrimiento Hardlube HP2 en acción
 DE Hardlube-beschichtete HP2-Maschinengewindebohrer
 EN Hardlube-coated HP2 Machine Taps in Action

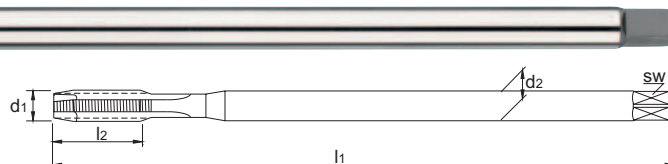
Watch me



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> 22.350 Phantom

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



HSS-E	M			3xD		ISO 2 6H	UNI			
										
≤500 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co	Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

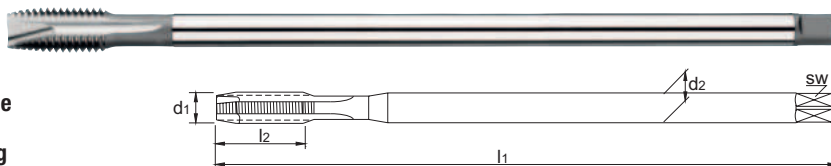
Ref.	d1	P	l1	l2	d2	sw	€
22.350.0400	M4	0.7	126	13	4.5	3.4	47,55
22.350.0500	M5	0.8	140	15	6	4.9	51,45

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



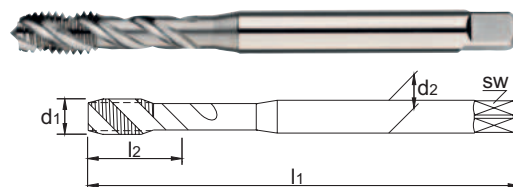
HSS-E	M			3xD			ISO 2 6H	UNI		
 P 11 ≤600 N/mm²	 P 12 ≤850 N/mm²	 P 13 ≤1000 N/mm²	 M 21 INOX ≤850N/mm²	 K 31 GG	 K 32 GGG GTS-GTW	 N 41 Alu	 N 42 Alu Si>10%	 N 51 Cu	 S 71 Ni/Co	 S 72 Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	8-15	2-8

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

> 23.300 Phantom

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



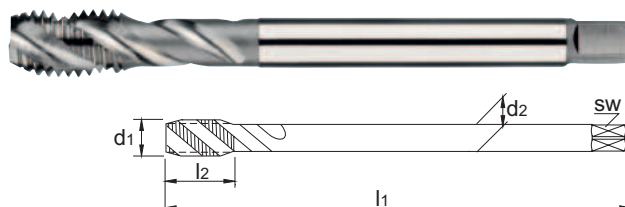
HSS-E	M		DIN 371	2,5xD			FormC 2-3	ISO 2 6H	UNI	
 P 11 ≤600 N/mm²	 P 12 ≤850 N/mm²	 P 13 ≤1000 N/mm²	 M 21 INOX ≤850 N/mm²	 K 31 GG	 K 32 GGG GTS-GTW	 N 41 Alu	 N 42 Alu Si>10%	 N 51 Cu	 S 71 Ni/Co	 S 72 Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.300.0200	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		DIN 376	2,5xD			FormC 2-3	ISO 2 6H	UNI	
										
≤600 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	INOX ≤850 N/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

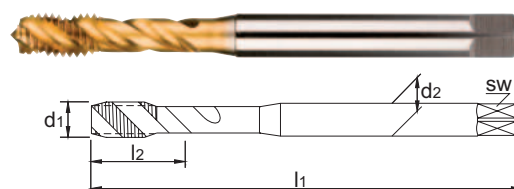
> 23.320 Phantom

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

HSS-E	M		TiN	DIN 371	2,5xD			FormC 2-3	ISO 2 6H	UNI	
 P 11 ≤500 N/mm²	 P 12 ≤850 N/mm²	 P 13 ≤1000 N/mm²	 M 21 INOX ≤850N/mm²	 M 22 INOX >850N/mm²	 K 31 GG	 K 32 GGG GTS-GTW	 N 41 Alu	 N 42 Alu Si>10%	 N 51 Cu	 S 71 Ni/Co	 S 72 Ti
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.320.0200	M2	0.4	45	8	2.8	2.1	29,45
23.320.0250	M2,5	0.45	50	9	2.8	2.1	28,35
23.320.0300	M3	0.5	56	11	3.5	2.7	25,15
23.320.0400	M4	0.7	63	13	4.5	3.4	25,45
23.320.0500	M5	0.8	70	16	6	4.9	26,75

Ref.	d1	P	l1	l2	d2	sw	€
23.320.0600	M6	1	80	19	6	4.9	26,80
23.320.0700	M7	1	80	19	7	5.5	34,15
23.320.0800	M8	1.25	90	22	8	6.2	32,85
23.320.1000	M10	1.5	100	24	10	8	39,30



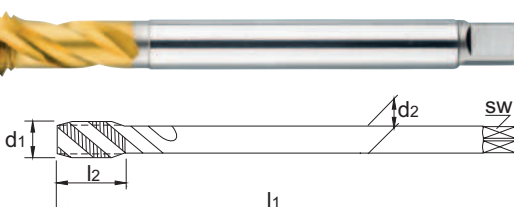
> 23.321 Phantom

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

HSS-E	M		TiN	DIN 376	2,5xD			FormC 2-3	ISO 2 6H	UNI
										
≤500 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	INOX ≤850 N/mm ²	INOX >850 N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.321.0600	M6	1	80	19	4.5	3.4	28,55
23.321.0800	M8	1.25	90	22	6	4.9	34,85
23.321.1000	M10	1.5	100	24	7	5.5	42,55
23.321.1200	M12	1.75	110	28	9	7	51,55

Ref.	d1	P	l1	l2	d2	sw	€
23.321.1400	M14	2	110	30	11	9	67,10
23.321.1600	M16	2	110	32	12	9	74,15
23.321.2000	M20	2.5	140	34	16	12	116,70
23.321.2400	M24	3	160	38	18	14.5	149,50



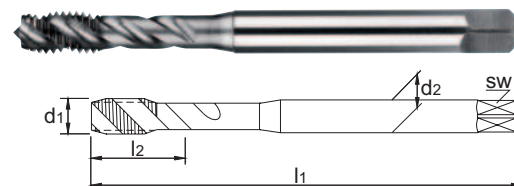
> 23.324 Phantom

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

HSS-E	M		TiCN	DIN 371	2,5xD		FormC 2-3	ISO 2 6H	UNI		
 P 11 ≤500 N/mm²	 P 12 ≤850 N/mm²	 P 13 ≤1000 N/mm²	 M 21 INOX ≤850N/mm²	 M 22 INOX >850N/mm²	 K 31 GG	 K 32 GGG GTS-GTW	 N 41 Alu	 N 42 Alu Si>10%	 N 51 Cu	 S 71 Ni/Co	 S 72 Ti
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8	2-8

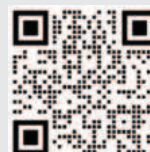
Ref.	d1	P	l1	l2	d2	sw	€
23.324.0300	M3	0.5	56	11	3.5	2.7	30,15
23.324.0400	M4	0.7	63	13	4.5	3.4	30,15
23.324.0500	M5	0.8	70	16	6	4.9	30,15

Ref.	d1	P	l1	l2	d2	sw	€
23.324.0600	M6	1	80	19	6	4.9	30,15
23.324.0800	M8	1.25	90	22	8	6.2	39,25
23.324.1000	M10	1.5	100	24	10	8	46,80



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

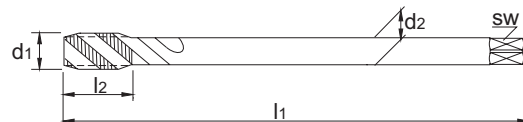
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> 23.325 Phantom

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



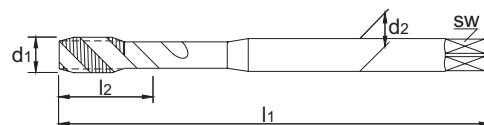
HSS-E	M		TiCN	DIN 376	2,5xD		 FormC 2-3	ISO 2 6H	UNI		
 P 11 ≤600 N/mm²	 P 12 ≤850 N/mm²	 P 13 ≤1000 N/mm²	 M 21 INOX ≤850 N/mm²	 M 22 INOX >850 N/mm²	 K 31 GG	 K 32 GGG GTS-GTW	 N 41 Alu	 N 42 Alu Si>10%	 N 51 Cu	 S 71 Ni/Co	 S 72 Ti
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.325.0600	M6	1	80	19	4.5	3.4	33,60
23.325.0800	M8	1.25	90	22	6	4.9	39,10
23.325.1000	M10	1.5	100	24	7	5.5	47,45
23.325.1200	M12	1.75	110	28	9	7	58,00

Ref.	d1	P	l1	l2	d2	sw	€
23.325.1400	M14	2	110	30	11	9	71,40
23.325.1600	M16	2	110	32	12	9	84,95
23.325.2000	M20	2.5	140	34	16	12	140,30

> 23.368 Phantom

NL HP2 UNI HSS-E PM Machinetap Metrisch, HARDLUBE
FR Taraud machine HSS-E PM HP2 UNI Métrique, HARDLUBE
ES Macho máquina HSS-E PM HP2 UNI Métrica, HARDLUBE
DE HP2 UNI HSS-E PM Maschinengewindebohrer Metrisch, HARDLUBE
EN HP2 UNI HSS-E PM Machine Tap Metric Coarse, HARDLUBE



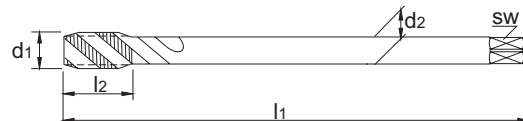
HSS-E PM	M		HARD LUBE	DIN 371	2,5xD			FormC 2-3	6HX	HP2 UNI	
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	S 71 Ni/Co	S 72 Ti
15-20	15-20	8-15	8-15	8-15	8-15	20-25	20-25	20-25	20-25	5-12	5-12

Ref.	d1	P	l1	l2	d2	sw	€
23.368.0300	M3	0.5	56	11	3.5	2.7	36,60
23.368.0400	M4	0.7	63	13	4.5	3.4	37,15
23.368.0500	M5	0.8	70	16	6	4.9	39,10

Ref.	d1	P	l1	l2	d2	sw	€
23.368.0600	M6	1	80	19	6	4.9	45,70
23.368.0800	M8	1.25	90	22	8	6.2	51,80
23.368.1000	M10	1.5	100	24	10	8	62,85

> 23.369 Phantom

NL HP2 UNI HSS-E PM Machinetap Metrisch, HARDLUBE
FR Taraud machine HSS-E PM HP2 UNI Métrique, HARDLUBE
ES Macho máquina HSS-E PM HP2 UNI Métrica, HARDLUBE
DE HP2 UNI HSS-E PM Maschinengewindebohrer Metrisch, HARDLUBE
EN HP2 UNI HSS-E PM Machine Tap Metric Coarse, HARDLUBE



HSS-E PM	M	60° 	HARD LUBE	DIN 376	2,5xD 		FormC 2-3 	6HX	HP2 UNI		
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	S 71 Ni/Co	S 72 Ti
15-20	15-20	8-15	8-15	8-15	8-15	20-25	20-25	20-25	20-25	5-12	5-12

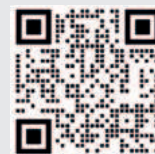
Ref.	d1	P	l1	l2	d2	sw	€
23.369.1200	M12	1.75	110	28	9	7	76,40
23.369.1400	M14	2	110	30	11	9	112,30

Ref.	d1	P	l1	l2	d2	sw	€
23.369.1600	M16	2	110	32	12	9	109,75
23.369.2000	M20	2.5	140	34	16	12	142,00



NL Hardlube gecoat HP2 Machinetappen in actie
FR Les tarauds machine HP2 revêtus de HARDLUBE en action
ES Los machos de rosca a máquina con recubrimiento Hardlube HP2 en acción
DE Hardlube-beschichtete HP2-Maschinengewindebohrer
EN Hardlube-coated HP2 Machine Taps in Action

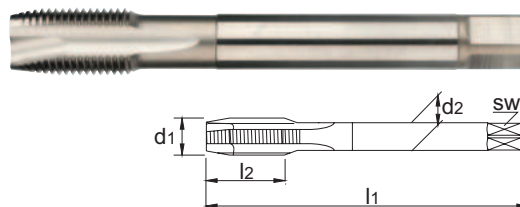
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> 25.097 Phantom

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)



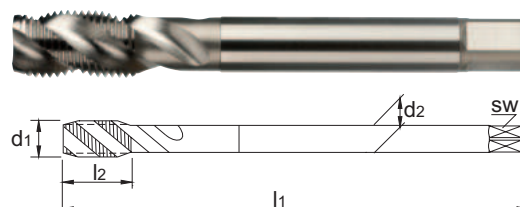
HSS-E	BSP G	55° 	DIN 5156	3xD		FormB 3,5-5	UNI				
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	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

> 25.297 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)



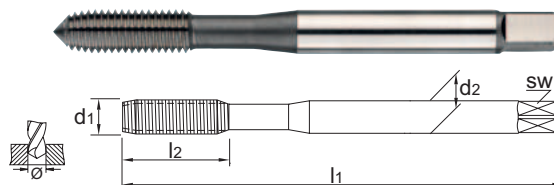
HSS-E	BSP G	55° 	DIN 5156	2,5xD 	 40°	FormC 2-3 	UNI				
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	TPI	l1	l2	d2	sw	€
25.297.0973	G 1/8	28	90	20	7	5.5	48,85
25.297.1316	G 1/4	19	100	22	11	9	67,35
25.297.1666	G 3/8	19	100	22	12	9	82,60
25.297.2096	G 1/2	14	125	25	16	12	109,05
25.297.2291	G 5/8	14	125	25	18	14.5	135,75
25.297.2644	G 3/4	14	140	28	20	16	184,80

Ref.	d1	TPI	l1	l2	d2	sw	€
25.297.3020	G 7/8	14	150	28	22	18	232,60
25.297.3325	G 1	11	160	30	25	20	277,00
25.297.3790	G 1.1/8	11	170	30	28	22	367,00
25.297.4191	G 1.1/4	11	170	30	32	24	441,00
25.297.4780	G 1.1/2	11	190	32	36	29	648,00

> 26.100 Phantom

NL HSS-E Roltap Metrisch, genitreerd
FR Taraud à refouler HSS-E Métrique, nitruré
ES Macho de laminación HSS-E Métrica, nitrurado
DE HSS-E Gewindeformer Metrisch, nitriert
EN HSS-E Fluteless Tap Metric Coarse, nitrided



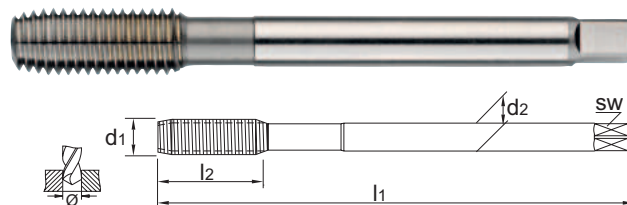
HSS-E	M	60°	NIT.	DIN 2174	DIN 371	3xD	FormC 2-3	6HX
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	N 41 Alu	N 42 Alu Si>10%	N 51 Cu				
15-25	10-20	10-35	10-20	15-35				

Ref.	d1	P	l1	l2	d2	sw	€
26.100.0200	M2	0.4	45	8	2.8	2.1	43,95
26.100.0250	M2,5	0.45	50	9	2.8	2.1	42,35
26.100.0300	M3	0.5	56	11	3.5	2.7	37,00
26.100.0400	M4	0.7	63	13	4.5	3.4	37,30

Ref.	d1	P	l1	l2	d2	sw	€
26.100.0500	M5	0.8	70	16	6	4.9	38,85
26.100.0600	M6	1	80	19	6	4.9	38,85
26.100.0800	M8	1.25	90	22	8	6.2	46,45
26.100.1000	M10	1.5	100	24	10	8	60,50

> 26.101 Phantom

NL HSS-E Roltap Metrisch, genitreerd
FR Taraud à refouler HSS-E Métrique, nitruré
ES Macho de laminación HSS-E Métrica, nitrurado
DE HSS-E Gewindeformer Metrisch, nitriert
EN HSS-E Fluteless Tap Metric Coarse, nitrided



HSS-E	M	60°	NIT.	DIN 2174	DIN 376	3xD	FormC 2-3	6HX
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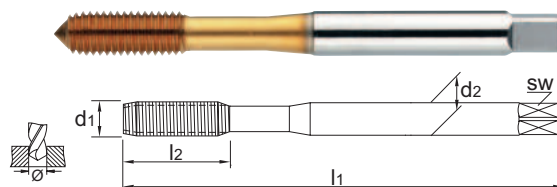
P 11 s800 N/mm²	P 12 s850 N/mm²	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-25	10-20	10-35	10-20	15-35

Ref.	d1	P	l1	l2	d2	sw	€
26.101.1200	M12	1.75	110	29	9	7	75,75

Ref.	d1	P	l1	l2	d2	sw	€
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> 26.110 Phantom

NL HSS-E Roltap Metrisch, TiN
FR Taraud à refouler HSS-E Métrique, TiN
ES Macho de laminación HSS-E Métrica, TiN
DE HSS-E Gewindeformer Metrisch, TiN
EN HSS-E Fluteless Tap Metric Coarse, TiN



HSS-E	M	60°	TiN	DIN 2174	DIN 371	3xD	FormC 2-3	6HX
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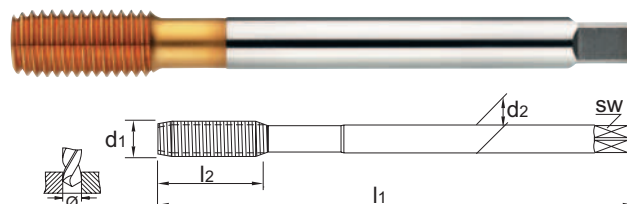
P 11 s800 N/mm²	P 12 s850 N/mm²	M 21 INOX s850N/mm²	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-25	10-20	7-10	10-35	10-20	15-35

Ref.	d1	P	l1	l2	d2	sw	€
26.110.0200	M2	0.4	45	8	2.8	2.1	52,10
26.110.0250	M2,5	0.45	50	9	2.8	2.1	48,70
26.110.0300	M3	0.5	56	11	3.5	2.7	43,40
26.110.0400	M4	0.7	63	13	4.5	3.4	44,25

Ref.	d1	P	l1	l2	d2	sw	€
26.110.0500	M5	0.8	70	16	6	4.9	45,85
26.110.0600	M6	1	80	19	6	4.9	47,15
26.110.0800	M8	1.25	90	22	8	6.2	59,40
26.110.1000	M10	1.5	100	24	10	8	74,15

> 26.111 Phantom

NL HSS-E Roltap Metrisch, TiN
FR Taraud à refouler HSS-E Métrique, TiN
ES Macho de laminación HSS-E Métrica, TiN
DE HSS-E Gewindeformer Metrisch, TiN
EN HSS-E Fluteless Tap Metric Coarse, TiN



HSS-E	M	60°	TiN	DIN 2174	DIN 376	3xD	FormC 2-3	6HX
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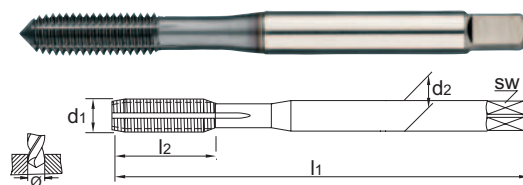
P 11 s800 N/mm²	P 12 s850 N/mm²	M 21 INOX s850N/mm²	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-25	10-20	7-10	10-35	10-20	15-35

Ref.	d1	P	l1	l2	d2	sw	€
26.111.1200	M12	1.75	110	29	9	7	90,50

Ref.	d1	P	l1	l2	d2	sw	€
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> 26.160 Phantom

NL HSS-E Roltap met smeergroef, Metrisch, TiCN
 FR Taraud à refouler HSS-E rainures de lubrification, Métrique, TiCN
 ES Macho de laminación HSS-E con ranura de refrigeración, Métrica, TiCN
 DE HSS-E Gewindeformer mit Schmiernut, Metrisch, TiCN
 EN HSS-E Fluteless Tap with lubrication grooves, Metric Coarse, TiCN



HSS-E	M	60°	TiCN	DIN 2174	DIN 371	3xD	Form C 2-3	6HX
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
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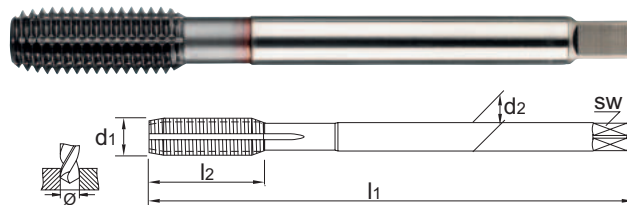
15-25	10-20	7-10	4-8	10-35	10-20	15-35
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Ref.	d1	P	l1	l2	d2	sw	€
26.160.0300	M3	0.5	56	11	3.5	2.7	50,80
26.160.0400	M4	0.7	63	13	4.5	3.4	52,70
26.160.0500	M5	0.8	70	16	6	4.9	53,15

Ref.	d1	P	l1	l2	d2	sw	€
26.160.0600	M6	1	80	19	6	4.9	54,55
26.160.0800	M8	1.25	90	22	8	6.2	68,45
26.160.1000	M10	1.5	100	24	10	8	85,50

> 26.161 Phantom

NL HSS-E Roltap met smeergroef, Metrisch, TiCN
 FR Taraud à refouler HSS-E rainures de lubrification, Métrique, TiCN
 ES Macho de laminación HSS-E con ranura de refrigeración, Métrica, TiCN
 DE HSS-E Gewindeformer mit Schmiernut, Metrisch, TiCN
 EN HSS-E Fluteless Tap with lubrication grooves, Metric Coarse, TiCN



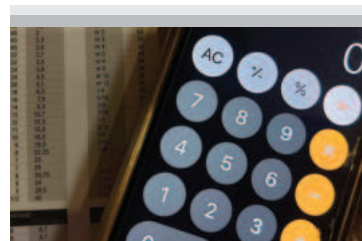
HSS-E	M	60°	TiCN	DIN 2174	DIN 376	3xD	Form C 2-3	6HX
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
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15-25	10-20	7-10	4-8	10-35	10-20	15-35
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Ref.	d1	P	l1	l2	d2	sw	€
26.161.1200	M12	1.75	110	29	9	7	104,45
26.161.1400	M14	2	110	26	11	9	118,95
26.161.1600	M16	2	110	26	12	9	142,75

Ref.	d1	P	l1	l2	d2	sw	€
26.161.1800	M18	2.5	125	30	14	11	184,30
26.161.2000	M20	2.5	140	32	16	12	225,90



NL Rolttappen voorboren?
 FR Avant-trou pour tarauds à refouler ?
 ES ¿Taladrado previo para machos laminadores?
 DE Vorbohren für Gewindeformer?
 EN Pre-drilling for roll taps?

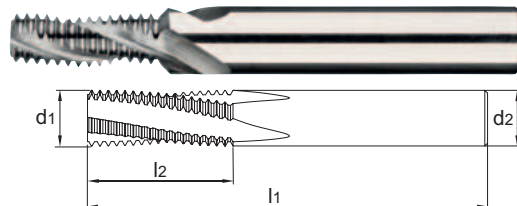
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> 26.310 Phantom

NL Volhardmetaal Draadrees 2xD
 FR Fraise à fileter Carbure Monobloc 2xD
 ES Fresa de roscado Metal Duro Integral 2xD
 DE Vollhartmetall Gewindefräser 2xD
 EN Solid Carbide Thread milling cutter 2xD



MG HM	EG	M	60°	2xD	DIN 6535-HA
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	H 15 HRC	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 52 CuAlFe	S 71 Ni/Co	S 72 Ti
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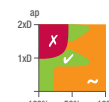
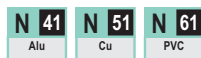
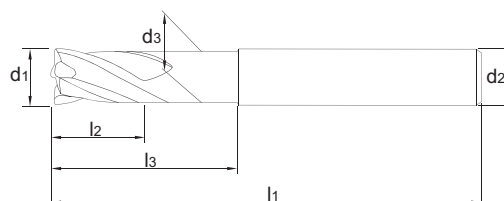
70-100 K	70-90 K	60-80 K	50-70 K	30-40 J	40-50 J	30-50 J	90-130 N	80-100 N	200-240 K	180-220 K	120-140 J	110-130 J	25-35 I	20-30 I
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Ref.	M	P	d1	l1	l2	d2	z	€
26.310.0600	M6	1	4.8	54	13.5	6	3	175,25
26.310.0800	M8	1.25	6.4	62	18.1	8	3	190,35
26.310.1000	M10	1.5	7.95	74	21.8	10	3	224,20
26.310.1200	M12	1.75	9.95	74	25.4	10	4	292,00

Ref.	M	P	d1	l1	l2	d2	z	€
26.310.1400	M14	2	11.2	90	31	12	4	313,00
26.310.1600	M16	2	12.8	90	35	14	4	395,00
26.310.2000	M20	2.5	14.95	102	41.3	16	4	455,00

> 33.610 Phantom

NL Volhardmetaal Schachtfrees, 3-snijder lang, Aluminium
 FR Fraise universelle 3 dents Carbure Monobloc version longue, Aluminium
 ES Fresa frontal de 3 labios Metal Duro Integral larga, Aluminio
 DE Vollhartmetall Universalfräser (3-Schneider) lang, Aluminium
 EN Solid Carbide 3 Flute End Mill long, Aluminium



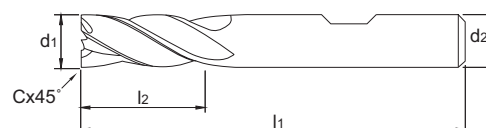
Ref.	d1	d2	d3	l1	l2	l3	z	€
33.610.0300	3	6	2.7	57	8	12	3	27,70
33.610.0400	4	6	3.7	57	11	18	3	37,85
33.610.0500	5	6	4.7	57	13	18	3	37,85

Ref.	d1	d2	d3	l1	l2	l3	z	€
33.610.0600	6	6	5.7	57	13	18	3	37,85
33.610.0800	8	8	7.4	63	21	25	3	57,05
33.610.1000	10	10	9.2	72	22	30	3	84,35

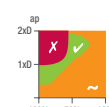
Ref.	d1	d2	d3	l1	l2	l3	z	€
33.610.1200	12	12	11	83	26	36	3	125,25
33.610.1600	16	16	15	92	36	42	3	198,85
33.610.2000	20	20	19	104	41	52	3	335,00

> 34.242 INTERNATIONAL TOOLS

NL ECO PRO Volhardmetaal Schachtfrees, 4-snijder kort, AITiN-X
 FR Fraise standard 4 dents Carbure Monobloc ECO PRO version courte, AITiN-X
 ES Fresa frontal de 4 labios Metal Duro Integral ECO PRO corta, AITiN-X
 DE ECO PRO Vollhartmetall 4 Schneiden-Schaftfräser kurz, AITiN-X
 EN ECO PRO Solid Carbide 4 Flute End Mill short, AITiN-X



NIEUW NOUVEAU NUEVO NEU



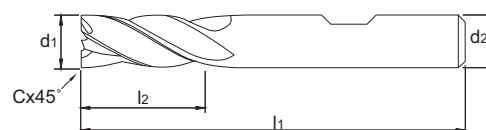
Ref.	d1	d2	l1	l2	C	z	€
34.242.0300	3	6	50	5	0,1	4	12,85
34.242.0400	4	6	54	8	0,15	4	12,85
34.242.0500	5	6	54	9	0,15	4	17,74

Ref.	d1	d2	l1	l2	C	z	€
34.242.0600	6	6	54	10	0,2	4	17,74
34.242.0800	8	8	58	12	0,2	4	28,00
34.242.1000	10	10	66	14	0,3	4	46,15

Ref.	d1	d2	l1	l2	C	z	€
34.242.1200	12	12	73	16	0,35	4	50,35
34.242.1600	16	16	82	22	0,4	4	94,80
34.242.2000	20	20	92	26	0,5	4	142,85

> 34.246 Phantom

NL UNI Volhardmetaal Vari-frees, 4-snijder kort, AITiN-X
 FR Fraise Vari Carbure Monobloc UNI version courte, AITiN-X
 ES Fresa Vari Metal Duro Integral UNI corta, AITiN-X
 DE UNI Vollhartmetall Fräser mit ungleicher Drillsteigung kurz, AITiN-X
 EN UNI Solid Carbide Vari Flute End Mill short, AITiN-X



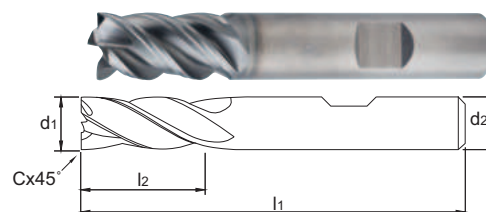
Ref.	d1	d2	l1	l2	C	z	€
34.246.0300	3	6	50	5	0,1	4	32,15
34.246.0400	4	6	54	8	0,15	4	32,15
34.246.0500	5	6	54	9	0,15	4	32,15

Ref.	d1	d2	l1	l2	C	z	€
34.246.0600	6	6	54	10	0,2	4	31,95
34.246.0800	8	8	58	12	0,2	4	43,95
34.246.1000	10	10	66	14	0,3	4	65,20

Ref.	d1	d2	l1	l2	C	z	€
34.246.1200	12	12	73	16	0,35	4	85,85
34.246.1600	16	16	82	22	0,4	4	163,00
34.246.2000	20	20	92	26	0,5	4	240,10

> 34.302 Phantom

NL HP2 UNI Volhardmetaal Vari-frees, 4-snijder 1,5xD AICrN
 FR Fraise Vari 4 dents Carbure Monobloc 1,5xD HP2 UNI AICrN
 ES Fresa Vari Metal Duro Integral 1,5xD HP2 UNI AICrN
 DE HP2 UNI Vollhartmetall Fräser mit ungleicher Teilung 1,5xD AICrN
 EN HP2 UNI Solid Carbide Vari Flute End Mill 1,5xD AICrN



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	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	Ni/Co	Ti

180-240 L	160-220 L	150-200 K	100-140 K	80-140 I	60-120 H	120-180 J	80-130 J	40-60 J	60-80 I
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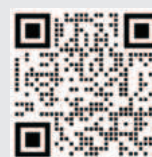
Ref.	d1	d2	l1	l2	C	z	€
34.302.0300	3	6	50	5	0,05	4	41,85
34.302.0400	4	6	54	8	0,05	4	41,95
34.302.0500	5	6	54	9	0,1	4	42,25
34.302.0600	6	6	54	10	0,1	4	43,25
34.302.0800	8	8	58	12	0,2	4	53,95

Ref.	d1	d2	l1	l2	C	z	€
34.302.1000	10	10	66	17	0,25	4	74,15
34.302.1200	12	12	73	20	0,3	4	99,30
34.302.1600	16	16	82	26	0,4	4	178,30
34.302.2000	20	20	92	32	0,5	4	269,00



NL HP2 vari-frees met werkgebiedicoon in werking
 FR Fraises carbure HP2 universelles. 4 dents, denture décalée et hélice variable, revêtement AICrN
 ES ¡La fresa Vari HP2 Phantom con icono de área de trabajo en funcionamiento!
 DE Phantom-Fräser HP2 mit ungleicher Teilung im Betrieb mit Arbeitsbereichsdiagramm!
 EN Phantom HP2 vari flute end mill in operation with work area icon!

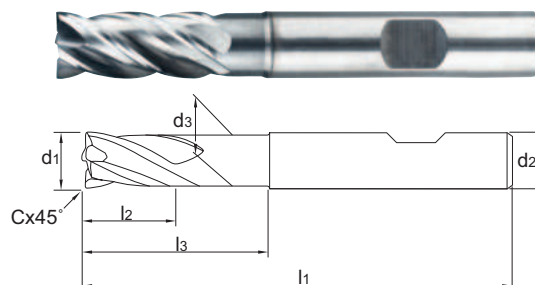
Watch me



www.phantom.eu

> 34.314 Phantom

NL HP2 UNI Volhardmetaal Vari-frees, 4-snijder 2xD/3xD AICrN
 FR Fraise Vari 4 dents Carbure Monobloc 2xD/3xD HP2 UNI AICrN
 ES Fresa Vari Metal Duro Integral 2xD/3xD HP2 UNI AICrN
 DE HP2 UNI Vollhartmetall Fräser mit ungleicher Teilung 2xD/3xD AICrN
 EN HP2 UNI Solid Carbide Vari Flute End Mill 2xD/3xD AICrN

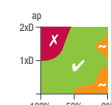


P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	S 71	S 72
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Ni/Co	Ti

180-240 L	160-220 L	150-200 K	100-140 K	80-140 I	60-120 H	120-180 J	80-130 J	40-60 J	60-80 I
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Ref.	d1	d2	d3	l1	l2	l3	C	z	€
34.314.0300	3	6	2.9	57	6	9	0,03	4	43,10
34.314.0400	4	6	3.8	57	8	12	0,04	4	43,10
34.314.0500	5	6	4.8	57	10	15	0,05	4	43,10
34.314.0600	6	6	5.6	57	12	18	0,06	4	43,20
34.314.0800	8	8	7.6	63	16	24	0,08	4	60,35
34.314.1000	10	10	9.5	72	20	30	0,1	4	94,15

Ref.	d1	d2	d3	l1	l2	l3	C	z	€
34.314.1200	12	12	11.5	83	24	36	0,12	4	115,90
34.314.1400	14	14	13.5	93	28	42	0,15	4	191,95
34.314.1600	16	16	15.3	108	32	48	0,16	4	212,45
34.314.1800	18	18	17.5	108	36	54	0,2	4	283,00
34.314.2000	20	20	19.3	126	40	60	0,2	4	350,00



NL Universele VHM frees én werkgebiedicoon
 FR Phantom simplifie le fraisage CNC grâce à sa fraise universelle VHM et son icône de zone de travail
 ES Fresa de metal duro universal e icono del área de trabajo
 DE Universeller VHM-Fräser und Arbeitsbereichsdiagramm
 EN Universal SC cutter plus work area icon

Read me



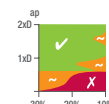
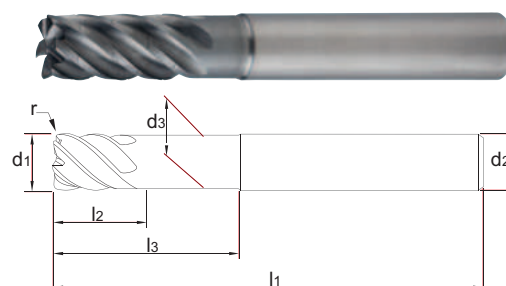
www.phantom.eu

> 34.330 Phantom

NL HP2 UNI Volhardmetaal Trochoïdaal-frees 2xD AlCrN
 FR Fraise-trochoïdale Carbure Monobloc 2xD HP2 UNI AlCrN
 ES Fresa trocoidal Metal Duro Integral 2xD HP2 UNI AlCrN
 DE HP2 UNI Vollhartmetall Trochoidaler-Schaftfräser 2xD AlCrN
 EN HP2 UNI Solid Carbide Trochoidal-end mill 2xD AlCrN

								
								
5800 N/mm ²	5850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850 N/mm ²	INOX >850 N/mm ²	GG	GG GTS-GTW	Ni/Co
180-240	160-220	150-200	100-140 K	80-140 I	60-120 H	120-180 J	80-130 J	40-60 J
								60-80 I

Ref.	d1	d2	d3	l1	l2	l3	r	z	€
34.330.0301	3	6	2.8	57	6	14		6	71,80
34.330.0401	4	6	3.8	57	8	16		6	71,80
34.330.0501	5	6	4.8	57	10	18		6	71,80
34.330.0601	6	6	5.7	57	12	19	0.1	6	71,80
34.330.0802	8	8	7.6	63	16	25	0.2	6	95,75

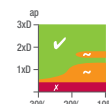
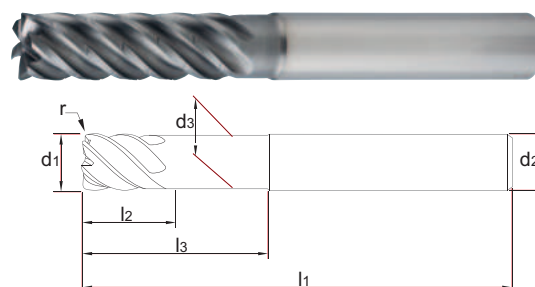


> 34.331 Phantom

NL HP2 UNI Volhardmetaal Trochoïdaal-frees 3xD AlCrN
 FR Fraise-trochoïdale Carbure Monobloc 3xD HP2 UNI AlCrN
 ES Fresa trocoidal Metal Duro Integral 3xD HP2 UNI AlCrN
 DE HP2 UNI Vollhartmetall Trochoidaler-Schaftfräser 3xD AlCrN
 EN HP2 UNI Solid Carbide Trochoidal-end mill 3xD AlCrN

									
									
5800 N/mm ²	5850 N/mm ²	51000 N/mm ²	51400 N/mm ²	INOX ≤850 N/mm ²	INOX >850 N/mm ²	GG	GG GTS-GTW	Ni/Co	Ti
180-240	160-220	150-200	100-140	80-140	60-120	120-180	80-130	40-60	60-80

Ref.	d1	d2	d3	l1	l2	l3	r	z	€
34.331.0301	3	6	2.8	62	9	14		6	76,55
34.331.0401	4	6	3.8	62	12	18		6	76,55
34.331.0501	5	6	4.8	62	15	21		6	76,55
34.331.0601	6	6	5.7	62	18	24	0.1	6	76,55
34.331.0802	8	8	7.6	68	24	30	0.2	6	101,70

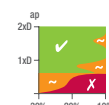
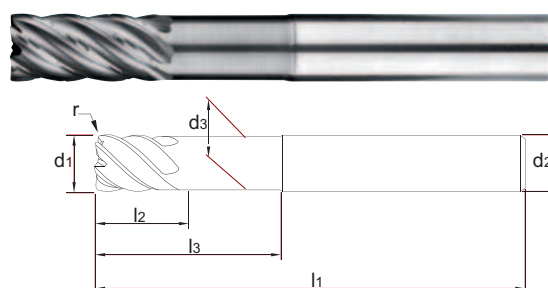


> 34.332 Phantom

NL HP2 UNI Volhardmetaal Trochoïdaal-frees 2xD/4xD AlCrN
 FR Fraise-trochoïdale Carbure Monobloc 2xD/4xD HP2 UNI AlCrN
 ES Fresa trocoidal Metal Duro Integral 2xD/4xD HP2 UNI AlCrN
 DE HP2 UNI Vollhartmetall Trochoidaler-Schaftfräser 2xD/4xD AlCrN
 EN HP2 UNI Solid Carbide Trochoidal-end mill 2xD/4xD AlCrN

									
									
≤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	Ni/Co	Ti
180-240	160-220	150-200	100-140	80-140	>80-120	120-180	80-130	40-60	60-80

Ref.	d1	d2	d3	l1	l2	l3	r	z	€
34.332.0301	3	6	2.8	62	6	12		6	74,15
34.332.0401	4	6	3.8	62	8	16		6	74,15
34.332.0501	5	6	4.8	62	10	20		6	74,15
34.332.0601	6	6	5.7	62	12	24	0.1	6	74,15
34.332.0802	8	8	7.6	70	16	32	0.2	6	98,70



Ref.	d1	d2	d3	l1	l2	l3	r	z	€
34.332.1002	10	10	9.5	80	20	40	0.2	6	133,40
34.332.1203	12	12	11.5	95	24	48	0.25	6	169,80
34.332.1605	16	16	15.5	115	32	64	0.5	6	317,00
34.332.2005	20	20	19.5	132	40	80	0.5	6	464,00

> 35.254 Phantom

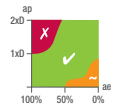
NL HP2 UNI Volhardmetaal Ruwrees 2xD/3xD AlCrN, fijn
FR Fraise d'ébauche Carbure Monobloc 2xD/3xD HP2 UNI AlCrN, pas fin
ES Fresa de desbaste Metal Duro Integral 2xD/3xD HP2 UNI AlCrN, paso fino
DE HP2 UNI Vollhartmetall Schruppfräser 2xD/3xD AlCrN, fein
EN HP2 UNI Solid Carbide Roughing Cutter 2xD/3xD AlCrN, fine pitch



160-200	130-180 H	110-160 I	80-120 H	70-120 J	50-100 I	100-160 I	80-140 I	40-50 I	50-65 I
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Ref.	d1	d2	d3	l1	l2	l3	C	z	€
35.254.0400	4	6	3.8	57	8	12	0,04	3	50,60
35.254.0500	5	6	4.8	57	10	15	0,05	4	50,60
35.254.0600	6	6	5.6	57	12	18	0,06	4	50,60
35.254.0800	8	8	7.6	63	16	24	0,08	4	72,65
35.254.1000	10	10	9.5	72	20	30	0,1	4	99,30

Ref.	d1	d2	d3	l1	l2	l3	C	z	€
35.254.1200	12	12	11.5	83	24	36	0,12	4	138,40
35.254.1400	14	14	13.5	93	28	42	0,15	4	197,30
35.254.1600	16	16	15.3	108	32	48	0,16	5	251,00
35.254.2000	20	20	19.3	126	40	60	0,2	6	382,00



> 35.484 Phantom

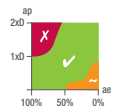
NL Volhardmetaal Ruwrees lang, TiAlN, fijn, roestvaststaal
FR Fraise d'ébauche Carbure Monobloc version longue, TiAlN, pas fin, Inox
ES Fresa de desbaste Metal Duro Integral larga, TiAlN, paso fino, acero inoxidable
DE Vollhartmetall Schruppfräser lang, TiAlN, fein, rostfreien Stahl
EN Solid Carbide Roughing Cutter long, TiAlN, fine pitch, stainless steel



70-80 H	80-100 I	70-100 H	50-80 J	40-60 I	35-40 I	50-65 I
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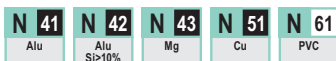
Ref.	d1	d2	l1	l2	C	z	€
35.484.0400	4	6	57	11	0,1	3	75,45
35.484.0500	5	6	57	13	0,15	4	75,45
35.484.0600	6	6	57	16	0,15	4	75,45
35.484.0800	8	8	63	16	0,2	4	85,10
35.484.1000	10	10	72	22	0,2	4	120,85

Ref.	d1	d2	l1	l2	C	z	€
35.484.1200	12	12	83	26	0,2	4	143,40
35.484.1400	14	14	83	26	0,2	5	197,70
35.484.1600	16	16	92	32	0,2	5	237,15
35.484.2000	20	20	104	38	0,2	6	390,00



> 35.540 Phantom

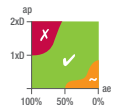
NL Volhardmetaal Ruwrees lang, rond, Aluminium
FR Fraise d'ébauche Carbure Monobloc version longue, ronde, Aluminium
ES Fresa de desbaste Metal Duro Integral larga, redondo, Aluminio
DE Vollhartmetall Schruppfräser lang, rund, Aluminium
EN Solid Carbide Roughing Cutter long, coarse pitch, Aluminium



250-270 N	160-180 M	115-130 J	115-130 L	250-270 N
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Ref.	d1	d2	l1	l2	C	z	€
35.540.0600	6	6	57	13	0,6	3	53,45
35.540.0800	8	8	63	16	0,6	3	57,50
35.540.1000	10	10	72	22	0,6	3	92,10

Ref.	d1	d2	l1	l2	C	z	€
35.540.1200	12	12	83	26	0,6	3	121,15
35.540.1600	16	16	92	32	0,9	3	203,95
35.540.2000	20	20	104	38	0,9	3	322,00



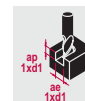
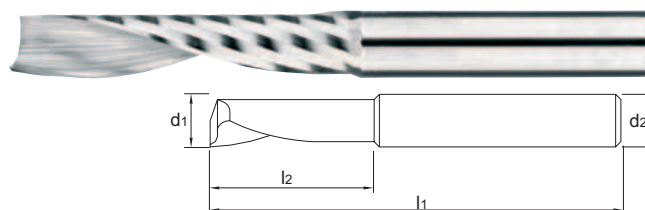
> 36.130 Phantom

NL Volhardmetaal Eensnijderfrees Aluminium, 21°
FR Fraise à 1 dent Carbure Monobloc Aluminium, 21°
ES Fresa frontal de 1 labio Metal Duro Integral Aluminio, 21°
DE Vollhartmetall Einzahnfräser Aluminium, 21°
EN Solid Carbide 1 Flute End Mill Aluminium, 21°



300-450 H 300-450 H

Ref.	d1	d2	l1	l2	z	€
36.130.0201	2	2	50	8	1	26,50
36.130.0202	2	6	64	8	1	32,95
36.130.0251	2.5	2.5	50	8	1	27,55
36.130.0252	2.5	6	64	8	1	32,95
36.130.0301	3	3	50	8	1	27,55
36.130.0302	3	6	64	8	1	32,95
36.130.0303	3	3	64	12	1	27,55
36.130.0304	3	6	64	12	1	32,95
36.130.0401	4	4	64	8	1	28,85
36.130.0402	4	4	64	12	1	29,65
36.130.0403	4	4	64	20	1	31,15
36.130.0404	4	6	64	20	1	33,00



Ref.	d1	d2	l1	l2	z	€
36.130.0405	4	4	64	30	1	33,00
36.130.0501	5	5	64	16	1	31,70
36.130.0502	5	6	64	16	1	33,00
36.130.0503	5	5	64	30	1	40,65
36.130.0602	6	6	64	12	1	37,00
36.130.0603	6	6	64	20	1	37,70
36.130.0604	6	6	76	30	1	39,20
36.130.0605	6	6	76	38	1	42,10
36.130.0801	8	8	64	25	1	57,15
36.130.0802	8	8	76	38	1	60,85
36.130.1001	10	10	76	30	1	96,50

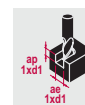
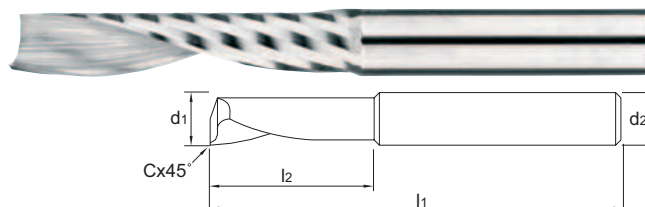
> 36.140 Phantom

NL Volhardmetaal Eensnijderfrees Aluminium, 30°
FR Fraise à 1 dent Carbure Monobloc Aluminium, 30°
ES Fresa frontal de 1 labio Metal Duro Integral Aluminio, 30°
DE Vollhartmetall Einzahnfräser Aluminium, 30°
EN Solid Carbide 1 Flute End Mill Aluminium, 30°



300-450 H 145-220 I 300-450 H

Ref.	d1	d2	l1	l2	C	z	€
36.140.0200	2	3	50	8	0,05	1	24,05
36.140.0250	2.5	3	40	12	0,05	1	26,15
36.140.0300	3	3	50	12	0,05	1	21,90
36.140.0400	4	4	60	15	0,1	1	27,65
36.140.0500	5	5	60	17	0,1	1	31,65



Ref.	d1	d2	l1	l2	C	z	€
36.140.0600	6	6	65	20	0,1	1	33,60
36.140.0800	8	8	65	22	0,15	1	54,05
36.140.1000	10	10	75	25	0,15	1	88,05
36.140.1200	12	12	80	30	0,15	1	118,65

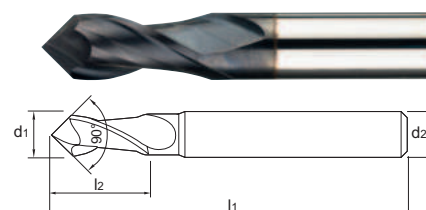
> 36.166 Phantom

NL Volhardmetaal Multi-PLUS frees AlTiN-X, 90°
FR Fraise Multi PLUS Carbure Monobloc AlTiN-X, 90°
ES Fresa Multi PLUS Metal Duro Integral AlTiN-X, 90°
DE Vollhartmetall Multi-PLUS Fräser AlTiN-X, 90°
EN Solid Carbide Multi-PLUS 2 Flute End Mill AlTiN-X, 90°



70-75 S 40-60 S 35-40 S 30-35 Q 30-35 Q 25-30 P 150-180 S 120-150 S 50-120 S 150-180 S 20-25 P 30-35 P

Ref.	d1	d2	l1	l2	z	€
36.166.0050	0.5	3	39	1	2	68,15
36.166.0100	1	3	39	2	2	65,50
36.166.0150	1.5	3	39	3	2	87,70
36.166.0200	2	3	39	4	2	68,15
36.166.0250	2.5	3	39	5	2	72,20
36.166.0300	3	4	50	6	2	80,20
36.166.0400	4	5	50	8	2	85,55



Ref.	d1	d2	l1	l2	z	€
36.166.0500	5	6	50	10	2	92,25
36.166.0600	6	8	60	12	2	101,60
36.166.0800	8	10	70	16	2	137,75
36.166.1000	10	12	70	18	2	180,55
36.166.1200	12	12	70	20	2	195,20
36.166.1600	16	16	80	26	2	271,00
36.166.2000	20	20	100	32	2	421,00

> 49.264 Phantom

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



NIEUW NOUVEAU NUEVO NEU

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/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	Ni/Co	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.	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 Vari Verzinkboren 42.558, 90°, 3 snijkanten, AITiN-X, met drievlaks schacht
- FR Jeu de fraises à chanfreiner Vari HSS-E HP2 UNI 42.558, 90°, 3 taillants, AITiN-X, queue à trois méplats
- ES Juego de avellanadores Vari HSS-E HP2 UNI 42.558, 90°, 3 labios, AITiN-X, con 3 chaflanes
- DE HP2 UNI HSS-E Satz Kegelsenker ungleichteilung 42.558, 90°, 3 Schneiden, AITiN-X, 3-Flächen-Schaft
- EN HP2 UNI HSS-E Vari Countersink set 42.558, 90°, 3 flute, AITiN-X, with 3 flat surfaces



NIEUW NOUVEAU NUEVO NEU

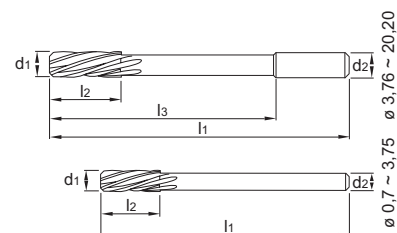
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	S 71	S 72
≤800 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	Ni/Co	Ti
30-40 H	25-35 F	20-30 F	10-16 A	13-21 B	12-20 A	25-35 H	30-40 H	60-80 I	30-50 I	40-60 G	30-40 G	7-11 A	7-11 B

Ref.	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

51.360 Phantom

NL Volhardmetaal Precisie Machineruimer vorm B/D x 0,01 mm
 FR Alésoir machine de précision Carbure Monobloc forme B/D x 0,01 mm
 ES Escariador máquina de precisión Metal Duro Integral forma B/D x 0,01 mm
 DE Vollhartmetall Präzisions Maschinenreibahlen form B/D x 0,01 mm
 EN Solid Carbide Precision Machine Reamer form B/D x 0,01 mm



MG HM	NORM	h6	x0,01	≤03 -0,000 +0,003	≤06 -0,000 +0,004	>06 -0,000 +0,005
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P 11 ≤500 N/mm²	P 12 ≤350 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	S 71 Ni/Co	S 72 Ti
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25-40 E	20-25 D	12-18 C	10-15 B	8-14 A	7-12 A	8-15 C	15-20 D	50-60 G	40-60 G	20-30 D	6-10 A	6-10 A
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Ref.	d1	l1	l2	l3	z	d2	€
51.360.0070-51.360.0079	0.7-0.79	33	7		4	0.7-0.79	75,55
51.360.0080-51.360.0105	0.8-1.05	38	7		4	0.8-1.05	70,20
51.360.0106-51.360.0109	1.06-1.09	40	10		4	1.06-1.09	70,20
51.360.0110-51.360.0155	1.1-1.55	40	10		4	1.1-1.55	71,10
51.360.0156-51.360.0159	1.56-1.59	43	11		4	1.56-1.59	71,10
51.360.0160-51.360.0179	1.60-1.79	43	11		4	1.60-1.79	69,60
51.360.0180-51.360.0235	1.8-2.35	49	12		4	1.8-2.35	69,60
51.360.0236	2.36	49	12		4	2.36	75,55
51.360.0237-51.360.0307	2.37-3.07	57	18		6	2.37-3.07	75,55
51.360.0308-51.360.0370	3.08-3.70	57	18		6	3.08-3.70	78,25
51.360.0371-51.360.0375	3.71-3.75	57	18		6	3.71-3.75	97,80
51.360.0376-51.360.0396	3.76-3.96	75	19	51	6	4	97,80
51.360.0397-51.360.0420	3.97-4.20	75	19	51	6	4	99,25
51.360.0421-51.360.0425	4.21-4.25	75	19	51	6	4	106,30
51.360.0426-51.360.0475	4.26-4.75	80	21	55	6	4.5	106,30
51.360.0476-51.360.0505	4.76-5.05	86	23	60	6	5	106,30
51.360.0506-51.360.0530	5.06-5.3	86	23	60	6	5	119,95
51.360.0535	5.35	93	26	66	6	5.5	119,95
51.360.0540-51.360.0580	5.40-5.8	93	26	66	6	5.5	121,80
51.360.0581-51.360.0596	5.81-5.96	101	28	73	6	6	121,80
51.360.0597-51.360.0670	5.97-6.7	101	28	73	6	6	128,15

Ref.	d1	l1	l2	l3	z	d2	€
51.360.0675-51.360.0705	6.75-7.05	109	31	80	6	7	156,30
51.360.0706-51.360.0755	7.06-7.55	109	31	80	6	7	172,70
51.360.0760-51.360.0796	7.6-7.96	117	33	86	6	8	171,40
51.360.0797-51.360.0855	7.97-8.55	117	33	86	6	8	180,40
51.360.0860-51.360.0905	8.6-9.05	125	36	91	6	9	187,55
51.360.0907-51.360.0955	9.07-9.55	125	36	91	6	9	212,25
51.360.0959-51.360.1003	9.59-10.03	133	38	99	6	10	225,70
51.360.1004-51.360.1104	10.04-11.04	133	38	99	6	10	227,95
51.360.1105-51.360.1130	11.05-11.3	133	38	99	6	10	250,00
51.360.1131-51.360.1199	11.31-11.99	151	44	106	6	12	250,00
51.360.1200-51.360.1203	12-12.03	151	44	106	6	12	264,00
51.360.1204-51.360.1220	12.04-12.20	151	44	106	6	12	345,00
51.360.1225-51.360.1305	12.25-13.05	151	44	106	6	12	348,00
51.360.1398-51.360.1405	13.98-14.05	160	47	110	8	14	552,00
51.360.1497-51.360.1505	14.97-15.05	162	50	112	8	14	612,00
51.360.1597-51.360.1605	15.97-16.05	170	52	117	8	16	674,00
51.360.1697-51.360.1705	16.97-17.05	175	54	122	8	16	796,00
51.360.1797-51.360.1805	17.97-18.05	182	56	129	8	16	796,00
51.360.1897-51.360.1905	18.97-19.05	189	58	136	8	16	981,00
51.360.1997-51.360.2005	19.97-20.05	195	60	142	8	16	981,00

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

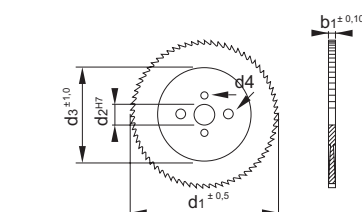
> 63.424 Phantom

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



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	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

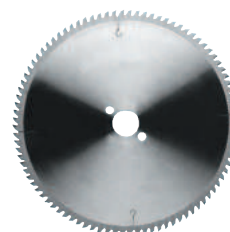
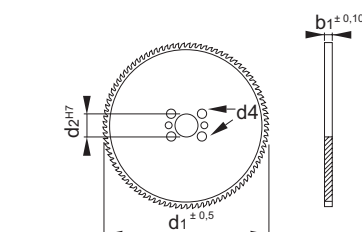
**> 63.450 Phantom**

NL HM-tip Cirkelzaag positieve spaanhoek
 FR Fraise-scie à plaquette carbure angle de coupe positif
 ES Fresa sierra circular con punta MD, ángulo de corte positivo
 DE Hartmetallbestückt Kreissägeblätter mit positivem Spanwinkel
 EN Carbide Tipped Circular Saw Blade slightly positive rake angle



2400-3600	1900-2800
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Ref.	d1	b1	d2	z	t	d4	€
63.450.2032	200	3.2	32	64	10		202,05
63.450.2532	250	3.4	32	60	13	2/11-63	217,05
63.450.2533	250	3.4	32	80	10	2/11-63	246,35
63.450.3029	300	3.4	32	72	13	2/11-63	261,00
63.450.3031	300	3.4	32	84	11	2/11-63	279,00
63.450.3032	300	3.4	32	96	10	2/11-63	299,00

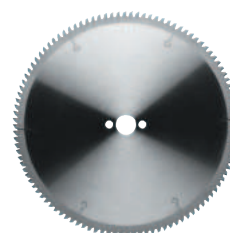
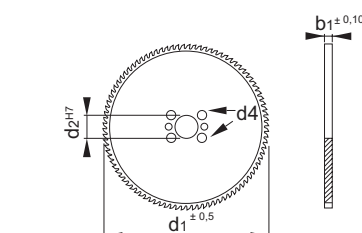
**> 63.460 Phantom**

NL HM-tip Cirkelzaag negatieve spaanhoek
 FR Fraise-scie à plaquette carbure angle de coupe négatif
 ES Fresa sierra circular con punta MD, ángulo de corte negativo
 DE Hartmetallbestückt Kreissägeblätter negativem Spanwinkel
 EN Carbide Tipped Circular Saw Blade negative cutting edge



2400-3600	1900-2800
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Ref.	d1	b1	d2	z	t	d4	€
63.460.2032	200	3.2	32	64	10	2/11-63	202,05
63.460.2532	250	3.4	32	60	13	2/11-63	217,05
63.460.2533	250	3.4	32	80	10	2/11-63	246,35
63.460.3029	300	3.4	32	72	13	2/11-63	261,00
63.460.3031	300	3.4	32	84	11	2/11-63	279,00
63.460.3032	300	3.4	32	96	10	2/11-63	299,00



> 66.160 Phantom

NL M42 Bi-Metaal Machinezaagblad
FR Lame de scie alternative Bi-métal M42
ES Hoja de sierra de máquina Bi-metal M42
DE M42 Bi-Metall Maschinensägeblätter
EN M42 Bi-Metal Power Hacksaw Blade

BiM
8% Co

Const.

 a0

INOX

P 11
≤600 N/mm²

P 12
≤850 N/mm²

P 13
≤1000 N/mm²

P 14
≤1400 N/mm²

M 21
INOX
≤850 N/mm²

M 22
INOX
>850 N/mm²

K 31
GG

K 32
GGG
GTS-GTW

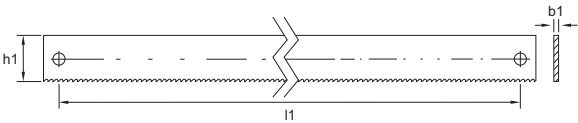
N 41
Alu

N 42
Alu
Si>10%

N 51
Cu

N 61
PVC

Ref.	l1	h1	b1	d1	TPI	€
66.160.4094	400	40	2	10.5	6	52,40
66.160.4095	400	40	2	10.5	8	52,40
66.160.4096	400	40	2	10.5	10	52,40
66.160.4097	400	40	2	10.5	14	52,40
66.160.4554	450	40	2	10.5	6	56,55
66.160.4555	450	40	2	10.5	8	56,55
66.160.4556	450	40	2	10.5	10	56,55



Ref.	l1	h1	b1	d1	TPI	€
66.160.5014	500	40	2	10.5	6	63,05
66.160.5015	500	40	2	8.5	8	63,05
66.160.5713	575	50	2.5	10.5	4	112,90
66.160.5714	575	50	2.5	10.5	6	112,90
66.160.7013	700	50	2.5	13	4	135,40
66.160.7014	700	50	2.5	13	6	135,45



> 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									
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=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%	 VARI	 K 10°	 INOX ≤850 N/mm²	 INOX >850 N/mm²	 GG	 Alu	 Alu Si>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	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	66.460.73....	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	$\alpha 10^\circ$				
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	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	$\alpha 5^\circ$	HP2 UNI										
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 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....				

> 75.100 Phantom

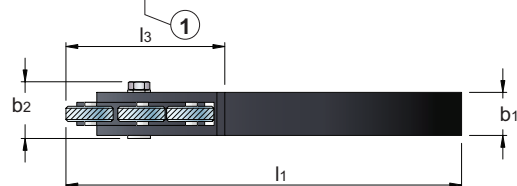
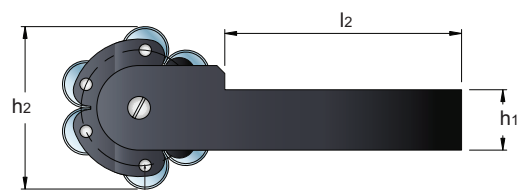
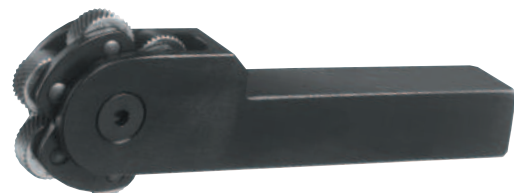
NL Drukkartelrolhouder type M1
 FR Outils de moletage par déformation type M1
 ES Moleteadores por deformación tipo M1
 DE Rändelhalter zur Verformung Typ M1
 EN Pressure knurlingtool type M1



Ref.	Type	Ø	l1	b1	b2	h1	1	€
75.100.1000	M1	8-200 mm	112	14	19	14	75.290.0100	48,10
75.100.1160	M1	8-200 mm	112	16	19	16	75.290.0100	52,30

> 75.103 Phantom

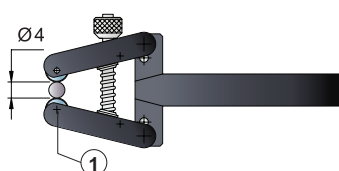
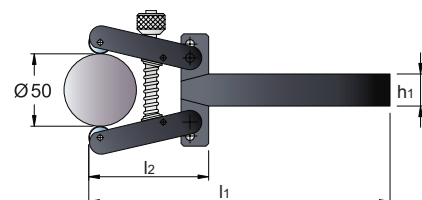
NL Drukkartelrolhouder type M2
 FR Outils de moletage par déformation type M2
 ES Moleteadores por deformación tipo M2
 DE Rändelhalter zur Verformung Typ M2
 EN Pressure knurlingtool type M2



Ref.	Type	Ø	l1	l2	b1	b2	h1	h2	1	€
75.103.1000	M2	8-200 mm	180	108	25	30	25	62	75.290.0201	328,00

> 75.106 Phantom

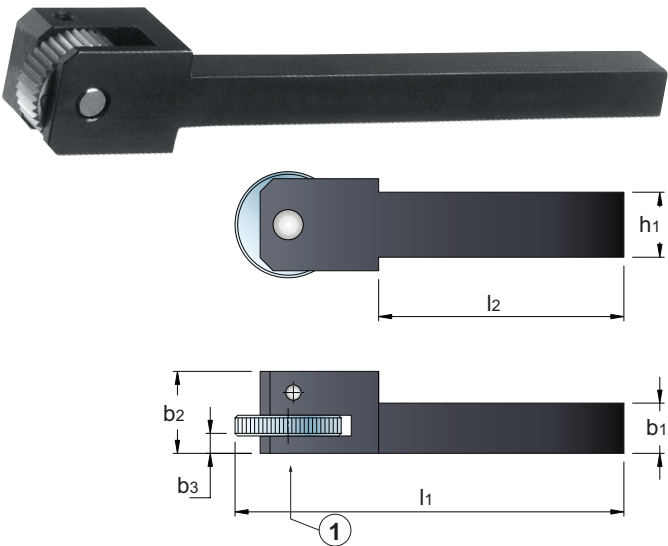
NL Drukkartelrolhouder type M3
 FR Outils de moletage par déformation type M3
 ES Moleteadores por deformación tipo M3
 DE Rändelhalter zur Verformung Typ M3
 EN Pressure knurlingtool Type M3



Ref.	Type	Ø	l1	l2	b1	b2	h1	h2	1	€
75.106.1000	M3	4-50 mm	221	87	20	26.5	25	107	75.290.0301	516,00

> 75.109 Phantom

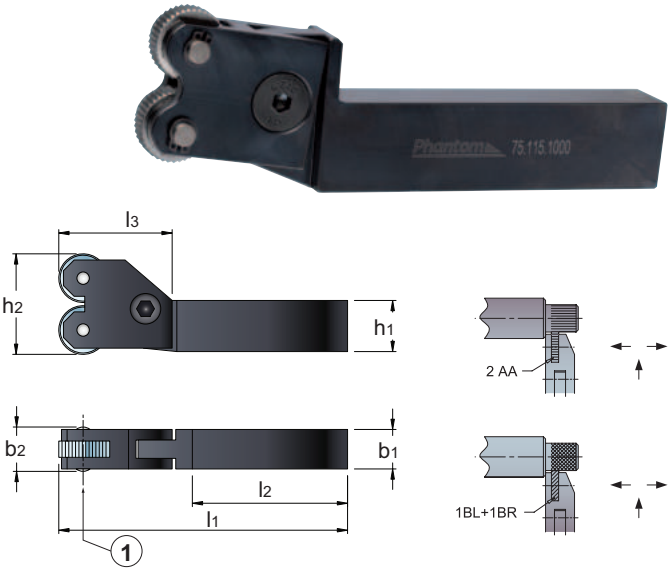
NL Drukkartelrolhouder type M6
FR Outils de moletage par déformation type M6
ES Moleteadores por deformación tipo M6
DE Rändelhalter zur Verformung Typ M6
EN Pressure knurlingtool Type M6



Ref.	Type	Ø	l1	l2	b1	b2	b3	h1	h2	1	€
75.109.1010	M6	5-200 mm	108	80	10	20	2.5	10	20	75.290.0600	290,00
75.109.1212	M6	5-200 mm	108	80	12	20	2.5	12	20	75.290.0600	290,00
75.109.1414	M6	5-200 mm	108	80	14	20	2.5	14	20	75.290.0600	290,00
75.109.1616	M6	5-200 mm	108	80	16	20	2.5	16	20	75.290.0600	290,00
75.109.2020	M6	5-200 mm	108	80	20	20	2.5	20	20	75.290.0600	290,00

> 75.115 Phantom

NL Drukkartelrolhouder type M7
FR Outils de moletage par déformation type M7
ES Moleteadores por deformación tipo M7
DE Rändelhalter zur Verformung Typ M7
EN Pressure knurlingtool type M7



Ref.	Type	Ø	l1	l2	b1	b2	h1	h2	1	€
75.115.1000	M7	8-200 mm	162	115	18	18	25	42	75.290.0301	224,00

Product comparator

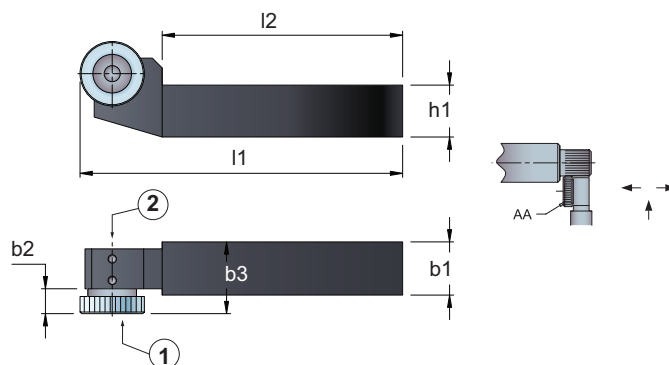
NL Productvergelijker op phantom.eu
FR Comparateur de produits sur Phantom.eu
ES Comparador de productos en phantom.eu
DE Produktvergleich auf phantom.eu
EN Product comparator on phantom.eu

Watch me

www.phantom.eu

> 75.121 Phantom

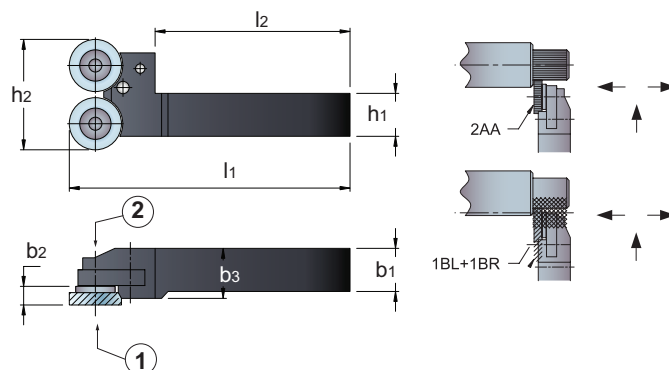
NL Drukkartelrolhouder type MCNCS
 FR Outils de moletage par déformation type MCNCS
 ES Moleteadores por deformación tipo MCNCS
 DE Rändelhalter zur Verformung Typ MCNCS
 EN Pressure knurlingtool type MCNCS



Ref.	Type	Ø	l1	l2	b1	b2	b3	h1	h2	1	€
75.121.2520	MCNCS-25	8-200 mm	150	125	25	10	32	20	30	75.290.0902	701,00
75.121.2532	MCNCS-25	8-200 mm	150	125	25	10	32	25	35	75.290.0902	701,00

> 75.125 Phantom

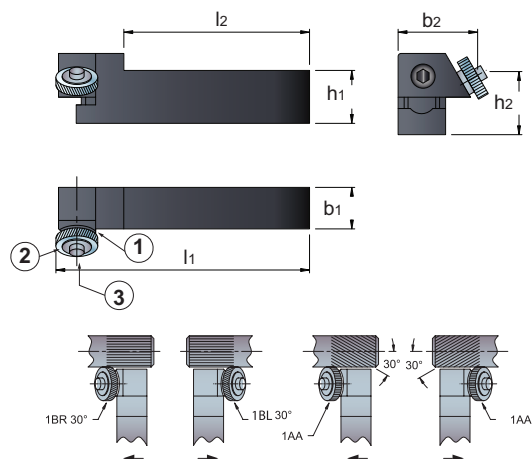
NL Drukkartelrolhouder type MCNC
 FR Outils de moletage par déformation type MCNC
 ES Moleteadores por deformación tipo MCNC
 DE Rändelhalter zur Verformung Typ MCNC
 EN Pressure knurlingtool Type MCNC



Ref.	Type	Ø	l1	l2	b1	b2	b3	h1	h2	1	€
75.125.2025	MCNC-25	8-200 mm	138	99	25	10	32	20	55	75.290.1002	923,00
75.125.2525	MCNC-25	8-200 mm	138	99	25	10	32	25	55	75.290.1002	923,00

> 75.129 Phantom

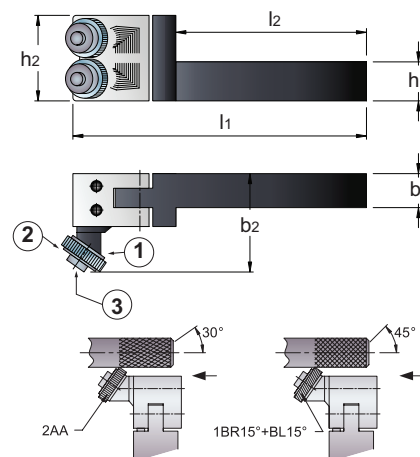
NL Freeskartelrolhouder type MFCNCS
 FR Outils de moletage par coupe type MFCNCS
 ES Moleteadores por corte tipo MFCNCS
 DE Rändelfräshalter Typ MFCNCS
 EN Cut-knurling tool type MFCNCS



Ref.	Type	Ø	l1	l2	b1	b2	h1	h2	1	€
75.129.2025	MFCNCS-21,5	5-250 mm	150	114	25	39	20	36	75.290.1101	920,00
75.129.2525	MFCNCS-21,5	5-250 mm	150	114	25	39	25	36	75.290.1101	920,00

> 75.133 Phantom

NL Freeskartelrolhouder type MFCNC
 FR Outils de moletage par coupe type MFCNC
 ES Moleteadores por corte tipo MFCNC
 DE Rändelfräshalter Typ MFCNC
 EN Cut-knurling tool type MFCNC



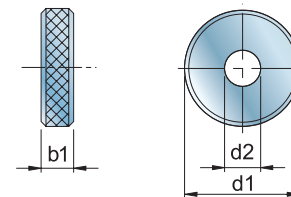
Ref.	Type	Ø	l1	l2	b1	b2	h1	h2	1	€
75.133.1616	MFCNC-14,5	4-50 mm	120	78	16	44	16	35	75.290.1201	1.404,00
75.133.2025	MFCNC-21,5	5-250 mm	165	112	25	63	20	50	75.290.1101	1.441,00
75.133.2525	MFCNC-21,5	5-250 mm	165	112	25	63	25	50	75.290.1101	1.404,00

> 75.174 Phantom
NL HSS-E PM Druk-Kartelrol M1, M2, M3, M6, M7

FR Molette pour moletage par déformation HSS-E PM M1, M2, M3, M6, M7

ES Moleta de deformación HSS-E PM M1, M2, M3, M6, M7

DE HSS-E PM Rändelräder M1, M2, M3, M6, M7

EN HSS-E PM Pressure knurl M1, M2, M3, M6, M7

**HSS-E
PM**

Ref.	Type	d1	d2	b1	t	€
75.174.1006	AA	20	6	8	0,6	51,65
75.174.1008	AA	20	6	8	0,8	51,65
75.174.1010	AA	20	6	8	1	51,65
75.174.1012	AA	20	6	8	1,2	51,65
75.174.1016	AA	20	6	8	1,6	51,65
75.174.1020	AA	20	6	8	2	51,65
75.174.4006	BR30	20	6	8	0,6	51,65
75.174.4008	BR30	20	6	8	0,8	51,65
75.174.4010	BR30	20	6	8	1	51,65
75.174.4012	BR30	20	6	8	1,2	51,65
75.174.4016	BR30	20	6	8	1,6	51,65
75.174.4018	BR30	20	6	8	1,8	51,65
75.174.4020	BR30	20	6	8	2	51,65

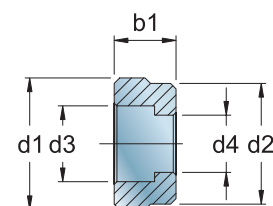
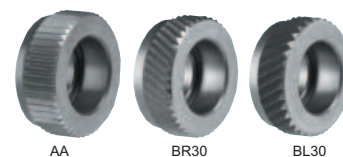
Ref.	Type	d1	d2	b1	t	€
75.174.5006	BL30	20	6	8	0,6	51,65
75.174.5008	BL30	20	6	8	0,8	51,65
75.174.5010	BL30	20	6	8	1	51,65
75.174.5012	BL30	20	6	8	1,2	51,65
75.174.5016	BL30	20	6	8	1,6	51,65
75.174.5018	BL30	20	6	8	1,8	51,65
75.174.5020	BL30	20	6	8	2	51,65
75.174.6006	GE30	20	6	8	0,6	81,65
75.174.6008	GE30	20	6	8	0,8	81,65
75.174.6010	GE30	20	6	8	1	81,65
75.174.6012	GE30	20	6	8	1,2	81,65
75.174.6016	GE30	20	6	8	1,6	81,65
75.174.6020	GE30	20	6	8	2	81,65

> 75.197 Phantom
NL HSS-E PM Druk-Kartelrol MCNC(S)-25

FR Molette pour moletage par déformation HSS-E PM MCNC(S)-25

ES Moleta de deformación HSS-E PM MCNC(S)-25

DE HSS-E PM Rändelräder MCNC(S)-25

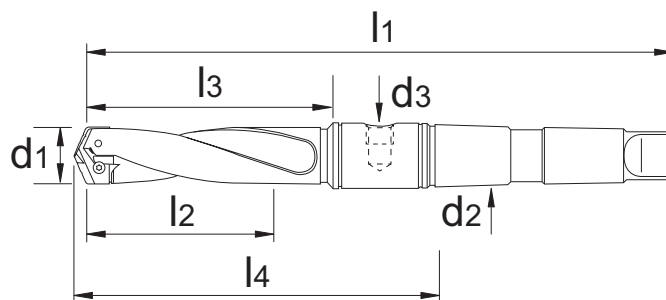
EN HSS-E PM Pressure knurl MCNC(S)-25

**HSS-E
PM**

Ref.	Type	d1	d2	d3	d4	b1	t	€
75.197.1006	AA	25	22	15	11	10	0,6	90,45
75.197.1008	AA	25	22	15	11	10	0,8	90,45
75.197.1010	AA	25	22	15	11	10	1	90,45
75.197.1012	AA	25	22	15	11	10	1,2	90,45
75.197.1016	AA	25	22	15	11	10	1,6	90,45
75.197.1020	AA	25	22	15	11	10	2	90,45
75.197.4006	BR30	25	22	15	11	10	0,6	90,45
75.197.4008	BR30	25	22	15	11	10	0,8	90,45
75.197.4010	BR30	25	22	15	11	10	1	90,45

Ref.	Type	d1	d2	d3	d4	b1	t	€
75.197.4012	BR30	25	22	15	11	10	1,2	90,45
75.197.4016	BR30	25	22	15	11	10	1,6	90,45
75.197.4020	BR30	25	22	15	11	10	2	90,45
75.197.5006	BL30	25	22	15	11	10	0,6	90,45
75.197.5008	BL30	25	22	15	11	10	0,8	90,45
75.197.5010	BL30	25	22	15	11	10	1	90,45
75.197.5012	BL30	25	22	15	11	10	1,2	90,45
75.197.5016	BL30	25	22	15	11	10	1,6	90,45
75.197.5020	BL30	25	22	15	11	10	2	90,45

> 75.600 Phantom

NL Wisselplaatboor, gepsiraliseerd, Morse Conus
 FR Foret à plaquettes indexables, goujure hélicoïdale, queue cône morse
 ES Broca de plaquita indexable, helicoidal, cono Morse
 DE Wendeplattenbohrer, spiralförmig, Morse Kegel
 EN Insert drill, with spiral flute, Morse taper



DIN

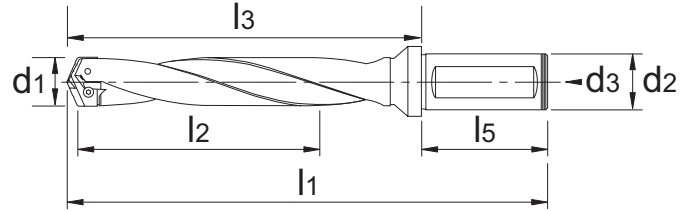
228-B



Ref.	d1	l2	l3	l4	l1	d3	d2	1 incl.	2 incl.	3 excl.	4 excl.	€
75.600.0406	12,98-15,49	89	110	146	218	NPT 1/16	MK 2	75.698.0400	T8	Gr.00	75.695.0000	139,00
75.600.0408	12,98-15,49	114	135	172	244	NPT 1/16	MK 2	75.698.0400	T8	Gr.00	75.695.0000	141,00
75.600.0412	12,98-15,49	178	199	235	307	NPT 1/16	MK 2	75.698.0400	T8	Gr.00	75.695.0000	184,00
75.600.0505	15,50-17,85	89	110	146	218	NPT 1/16	MK 2	75.698.0500	T8	Gr.05	75.695.0000	139,00
75.600.0507	15,50-17,85	114	135	172	244	NPT 1/16	MK 2	75.698.0500	T8	Gr.05	75.695.0000	141,00
75.600.0511	15,50-17,85	178	199	235	307	NPT 1/16	MK 2	75.698.0500	T8	Gr.05	75.695.0000	184,00
75.600.1009	17,86-21,99	172	200	244	334	NPT 1/8	MK 3	75.698.1000	T9	Gr.10	75.695.1200	195,00
75.600.1011	17,86-21,99	219	251	295	385	NPT 1/8	MK 3	75.698.1000	T9	Gr.10	75.695.1200	196,00
75.600.1013	17,86-21,99	273	302	346	436	NPT 1/8	MK 3	75.698.1000	T9	Gr.10	75.695.1200	209,00
75.600.1018	17,86-21,99	363	395	439	529	NPT 1/8	MK 3	75.698.1000	T9	Gr.10	75.695.1200	261,00
75.600.1507	22,00-24,60	172	200	244	334	NPT 1/8	MK 3	75.698.1000	T9	Gr.15	75.695.1200	195,00
75.600.1509	22,00-24,60	219	251	295	385	NPT 1/8	MK 3	75.698.1000	T9	Gr.15	75.695.1200	196,00
75.600.1512	22,00-24,60	273	302	346	436	NPT 1/8	MK 3	75.698.1000	T9	Gr.15	75.695.1200	209,00
75.600.1515	22,00-24,60	363	395	439	529	NPT 1/8	MK 3	75.698.1000	T9	Gr.15	75.695.1200	261,00
75.600.2007	24,61-29,99	137	216	262	375	NPT 1/8	MK 4	75.698.2000	T15	Gr.20	75.695.1200	247,00
75.600.2009	24,61-29,99	238	267	313	426	NPT 1/8	MK 4	75.698.2000	T15	Gr.20	75.695.1200	254,00
75.600.2010	24,61-29,99	289	318	364	477	NPT 1/8	MK 4	75.698.2000	T15	Gr.20	75.695.1200	259,00
75.600.2015	24,61-29,99	400	429	475	588	NPT 1/8	MK 4	75.698.2000	T15	Gr.20	75.695.1200	323,00
75.600.2506	30,00-35,50	187	216	269	383	NPT 1/8	MK 4	75.698.2000	T15	Gr.25	75.695.2300	247,00
75.600.2508	30,00-35,50	289	318	371	484	NPT 1/8	MK 4	75.698.2000	T15	Gr.25	75.695.2300	259,00
75.600.2512	30,00-35,50	400	429	482	595	NPT 1/8	MK 4	75.698.2000	T15	Gr.25	75.695.2300	323,00
75.600.3005	35,51-41,99	210	241	295	408	NPT 1/4	MK 4	75.698.3400	T20	Gr.30	75.695.2300	338,00
75.600.3009	35,51-41,99	349	381	435	548	NPT 1/4	MK 4	75.698.3400	T20	Gr.30	75.695.2300	347,00
75.600.3505	42,00-47,99	210	241	295	408	NPT 1/4	MK 4	75.698.3400	T20	Gr.35	75.695.2300	338,00
75.600.3508	42,00-47,99	349	381	435	548	NPT 1/4	MK 4	75.698.3400	T20	Gr.35	75.695.2300	347,00
75.600.4004	48,00-55,99	232	267	321	465	NPT 1/4	MK 5	75.698.3400	T20	Gr.40	75.695.4000	362,00
75.600.4008	48,00-55,99	422	457	511	656	NPT 1/4	MK 5	75.698.3400	T20	Gr.40	75.695.4000	372,00
75.600.4504	56,00-65,09	232	267	321	465	NPT 1/4	MK 5	75.698.3400	T20	Gr.45	75.695.4000	362,00
75.600.4507	56,00-65,09	422	457	511	656	NPT 1/4	MK 5	75.698.3400	T20	Gr.45	75.695.4000	372,00
75.600.5004	63,50-76,99	273	318	389	532	NPT 1/2	MK 5	75.998.5800	T25	Gr.50	75.695.5800	534,00
75.600.5007	63,50-76,99	464	508	579	722	NPT 1/2	MK 5	75.998.5800	T25	Gr.50	75.695.5800	605,00

> 75.620 Phantom

- NL Wisselplaatboor, gespiraliseerd, Cilindrisch met plat vlak
FR Foret à plaquettes indexables, goujure hélicoïdale, Cylindrique avec 1 méplat
ES Broca de plaquita indexable, helicoidal, mango cilíndrico con 1 plano
DE Wendeplattenbohrer, spiralförmig, Zylinderschaft mit Mitnahmefläche
EN Insert drill, with spiral flute, Cylindrical with flat

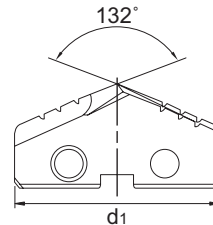


NIEUW NOUVEAU NUEVO NEU

Ref.	d1	l2	l3	l4	l1	d3	d2	l5	1 incl.	2 incl.	3 excl.	€
75.620.0406	12,98-15,49	89	118	142	168	NPT 1/8	20 mm	50	75.698.0400	T8	Gr.00	136,00
75.620.0407	12,98-15,49	114	143	146	193	NPT 1/8	20 mm	50	75.698.0400	T8	Gr.00	147,00
75.620.0411	12,98-15,49	178	206	209	256	NPT 1/8	20 mm	50	75.698.0400	T8	Gr.00	182,00
75.620.0505	15,50-17,85	89	118	142	168	NPT 1/8	20 mm	50	75.698.0500	T8	Gr.05	136,00
75.620.0506	15,50-17,85	114	143	146	193	NPT 1/8	20 mm	50	75.698.0500	T8	Gr.05	147,00
75.620.0510	15,50-17,85	178	206	209	256	NPT 1/8	20 mm	50	75.698.0500	T8	Gr.05	182,00
75.620.1005	17,86-21,99	118	155	158	211	NPT 1/8	25 mm	56	75.698.1000	T9	Gr.10	152,00
75.620.1008	17,86-21,99	168	206	209	262	NPT 1/8	25 mm	56	75.698.1000	T9	Gr.10	174,00
75.620.1010	17,86-21,99	219	256	262	312	NPT 1/8	25 mm	56	75.698.1000	T9	Gr.10	194,00
75.620.1505	22,00-24,60	118	155	158	211	NPT 1/8	25 mm	56	75.698.1000	T9	Gr.15	152,00
75.620.1509	22,00-24,60	219	256	262	312	NPT 1/8	25 mm	56	75.698.1000	T9	Gr.15	194,00
75.620.1511	22,00-24,60	270	307	311	363	NPT 1/8	25 mm	56	75.698.1000	T9	Gr.15	216,00
75.620.2005	24,61-29,99	137	179	183	239	NPT 1/4	32 mm	60	75.698.2000	T15	Gr.20	198,00
75.620.2010	24,61-29,99	289	332	335	392	NPT 1/4	32 mm	60	75.698.2000	T15	Gr.20	266,00
75.620.2505	30,00-35,50	187	230	234	290	NPT 1/4	32 mm	60	75.698.2000	T15	Gr.25	224,00
75.620.2508	30,00-35,50	289	332	335	392	NPT 1/4	32 mm	60	75.698.2000	T15	Gr.25	266,00
75.620.3005	35,51-41,99	210	262	267	332	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.30	303,00
75.620.3008	35,51-41,99	349	364	368	434	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.30	357,00
75.620.3503	42,00-47,99	165	218	222	288	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.35	280,00
75.620.3505	42,00-47,99	260	313	332	383	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.35	331,00
75.620.4004	48,00-55,99	232	281	286	351	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.40	326,00
75.620.4006	48,00-55,99	350	399	404	469	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.40	353,00
75.620.4504	56,00-65,09	232	281	286	351	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.45	326,00
75.620.4505	56,00-65,09	350	399	404	469	NPT 1/4	40 mm	70	75.698.3400	T20	Gr.45	353,00

> 75.650 Phantom

- NL UNI HSS-E PM Boorwisselplaat AICrN
FR Plaquette de perçage indexable HSS-E PM UNI AICrN
ES Plaquita HSS-E PM UNI AICrN
DE UNI HSS-E PM Bohrer wendeplatte AICrN
EN UNI HSS-E PM Drilling insert AICrN



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 43	N 51	N 52	N 61	N 62	S 71	S 72
5800 N/mm ²	5850 N/mm ²	5100 N/mm ²	51400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Mg	Cu	CuAlFe	PVC	GFK/CFK	Ni/Co	Ti
40-80 C	35-70 C	30-50 B	20-35 B	18-32 A	15-25 A	40-70 C	30-60 C	100-200 B	100-150 C	60-80 C	40-50 C	50-75 B	50-90 C	50-90 C	8-12 A	10-14 A

Ref.	d1	Type	€	Ref.	d1	Type	€	Ref.	d1	Type	€
75.650.1300	13	Gr.00	49,10	75.650.2200	22	Gr.15	58,55	75.650.4000	40	Gr.30	96,35
75.650.1350	13.5	Gr.00	49,10	75.650.2300	23	Gr.15	58,55	75.650.4100	41	Gr.30	96,35
75.650.1400	14	Gr.00	49,10	75.650.2400	24	Gr.15	58,55	75.650.4200	42	Gr.35	96,35
75.650.1450	14.5	Gr.00	49,10	75.650.2500	25	Gr.20	70,30	75.650.4300	43	Gr.35	96,35
75.650.1500	15	Gr.00	49,10	75.650.2600	26	Gr.20	70,30	75.650.4400	44	Gr.35	96,35
75.650.1550	15.5	Gr.05	49,10	75.650.2700	27	Gr.20	70,30	75.650.4500	45	Gr.35	96,35
75.650.1600	16	Gr.05	49,10	75.650.2800	28	Gr.20	70,30	75.650.4600	46	Gr.35	96,35
75.650.1650	16.5	Gr.05	49,10	75.650.2900	29	Gr.20	70,30	75.650.4700	47	Gr.35	96,35
75.650.1700	17	Gr.05	49,10	75.650.3000	30	Gr.25	70,30	75.650.4800	48	Gr.40	134,45
75.650.1750	17.5	Gr.05	49,10	75.650.3100	31	Gr.25	70,30	75.650.4900	49	Gr.40	134,45
75.650.1800	18	Gr.10	58,55	75.650.3200	32	Gr.25	70,30	75.650.5000	50	Gr.40	134,45
75.650.1850	18.5	Gr.10	58,55	75.650.3300	33	Gr.25	70,30	75.650.5100	51	Gr.40	134,45
75.650.1900	19	Gr.10	58,55	75.650.3400	34	Gr.25	70,30	75.650.5200	52	Gr.40	134,45
75.650.1950	19.5	Gr.10	58,55	75.650.3500	35	Gr.25	70,30	75.650.5300	53	Gr.40	134,45
75.650.2000	20	Gr.10	58,55	75.650.3600	36	Gr.30	96,35	75.650.5400	54	Gr.40	134,45
75.650.2050	20.5	Gr.10	58,55	75.650.3700	37	Gr.30	96,35	75.650.5500	55	Gr.40	134,45
75.650.2100	21	Gr.10	58,55	75.650.3800	38	Gr.30	96,35	75.650.5600	56	Gr.45	134,45
75.650.2150	21.5	Gr.10	56,80	75.650.3900	39	Gr.30	96,35	75.650.5700	57	Gr.45	134,45

> 75.650 Phantom

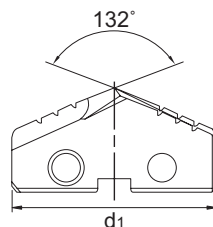
Ref.	d1	Type	€
75.650.5800	58	Gr.45	134,45
75.650.5900	59	Gr.45	134,45
75.650.6000	60	Gr.45	134,45
75.650.6100	61	Gr.45	134,45
75.650.6200	62	Gr.45	134,45

Ref.	d1	Type	€
75.650.6300	63	Gr.45	134,45
75.650.6400	64	Gr.45	134,45
75.650.6500	65	Gr.45	134,45
75.650.6600	66	Gr.50	148,35
75.650.6800	68	Gr.50	148,35

Ref.	d1	Type	€
75.650.7000	70	Gr.50	148,35
75.650.7200	72	Gr.50	148,35
75.650.7400	74	Gr.50	148,35
75.650.7600	76	Gr.50	148,35

> 75.680 Phantom

NL UNI hardmetaal Boorwisselplaat AICrN
FR Plaquette de perçage indexable Carbone UNI AICrN
ES Plaquita Metal Duro Integral UNI AICrN
DE UNI Hartmetall Bohrer wendeplatte AICrN
EN UNI carbide Drilling insert AICrN



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 43	N 51	N 52	N 61	N 62	S 71	S 72
≤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	Alu Si>10%	Mg	Cu	CuAlFe	PVC	GFK/CFK	NiCo	Ti

80-130 C	70-95 C	50-75 B	35-50 B	35-65 A	25-50 A	80-140 C	60-120 C	250-450 B	250-450 C	70-90 C	80-120 C	70-110 B	50-90 C	50-90 C	16-25 A	20-35 A
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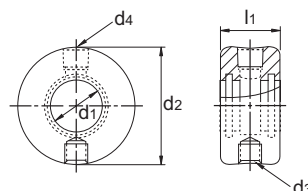
Ref.	d1	Type	€
75.680.1300	13	Gr.00	47,55
75.680.1350	13.5	Gr.00	47,55
75.680.1400	14	Gr.00	47,55
75.680.1450	14.5	Gr.00	47,55
75.680.1500	15	Gr.00	47,55
75.680.1550	15.5	Gr.05	47,55
75.680.1600	16	Gr.05	47,55
75.680.1650	16.5	Gr.05	47,55
75.680.1700	17	Gr.05	47,55
75.680.1750	17.5	Gr.05	47,55
75.680.1800	18	Gr.10	61,80

Ref.	d1	Type	€
75.680.1850	18.5	Gr.10	61,80
75.680.1900	19	Gr.10	61,80
75.680.1950	19.5	Gr.10	61,80
75.680.2000	20	Gr.10	61,80
75.680.2050	20.5	Gr.10	61,80
75.680.2100	21	Gr.10	61,80
75.680.2200	22	Gr.15	61,80
75.680.2300	23	Gr.15	61,80
75.680.2400	24	Gr.15	61,80
75.680.2500	25	Gr.20	72,35
75.680.2600	26	Gr.20	72,35

Ref.	d1	Type	€
75.680.2700	27	Gr.20	72,35
75.680.2800	28	Gr.20	72,35
75.680.2900	29	Gr.20	72,35
75.680.3000	30	Gr.25	72,35
75.680.3100	31	Gr.25	72,35
75.680.3200	32	Gr.25	72,35
75.680.3300	33	Gr.25	72,35
75.680.3400	34	Gr.25	72,35
75.680.3500	35	Gr.25	72,35

> 75.695 Phantom

NL Koelmiddelring voor wisselplaatboor
FR Bague de refroidissement pour forets à plaquettes indexables
ES Anillo refrigerante para broca de plaquita
DE Kühlmittelring für Wendeplattenbohrer
EN Coolant ring for insert drill



Ref.	Type	d1	d2	d3	d4	l1	€
75.695.0000	Gr. 00-05	19.05	44.45	M8	NPT 1/8	22.23	27,00
75.695.1200	Gr. 10-20	25.4	53.97	M8	NPT 1/8	28.57	30,00
75.695.2300	Gr. 25-35	31.75	63.5	M10	NPT 1/4	34.92	37,00
75.695.4000	Gr. 40-45	44.45	76.2	M10	NPT 1/4	34.92	48,00
75.695.5800	Gr.50	57.15	95.27	M12	NPT 1/2	44.45	71,00

> 75.697 Phantom

NL Blokkeerstang
FR Barre de blocage
ES Barra de bloqueo
DE Sperrbalken
EN Blocking bar



Ref.	Type	d1	l1	€
75.697.0120	Gr. 00-20	M8	250	7,00

Ref.	Type	d1	l1	€
75.697.2340	Gr. 25-45	M10	250	8,00

Ref.	Type	d1	l1	€
75.697.5780	Gr.50	M12	250	7,00

> 75.698 Phantom

NL torx schroef, Wisselplaatboor
FR vis torx, Foret à plaquettes indexables
ES tornillo torx, Broca de plaquita indexable
DE Torx-Schraube, Wendeplattenbohrer
EN torx screw, Insert drill



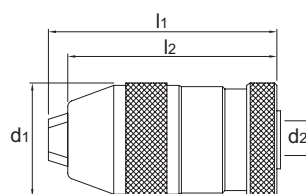
Ref.	Type	Contents	€
75.698.0400	Gr.00	M2,5X5,6 T8	4,00
75.698.0500	Gr.05	M2,5X6,9 T8	4,00

Ref.	Type	Contents	€
75.698.1000	Gr. 10-15	M3X7,5 T9	4,00
75.698.2000	Gr. 20-25	M4X10 T15	4,00

Ref.	Type	Contents	€
75.698.3400	Gr. 30-45	M5X14 T20	4,00
75.698.5800	Gr.50	M6X19 T25	4,00

**> 81.200 Phantom**

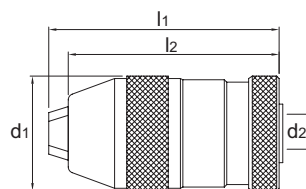
NL Zelfspannende Boorhouder, type A
 FR Mandrin de perçage auto-serrant, type A
 ES Portabroca cierre automático, tipo A
 DE Selbstspannende Bohrfutter, Typ A
 EN Industrial Keyless Chuck, type A

**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

> 81.230 Phantom

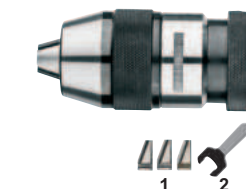
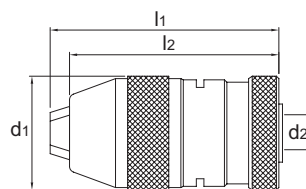
NL Zelfspannende Precisieboorhouder, verzwaarde uitvoering, type P
 FR Mandrin de perçage de précision auto-serrant, version extra renforcée, type P
 ES Portabroca de precisión, cierre automático, versión extra macizo, tipo P
 DE Selbstspannende Präzisionsbohrfutter, extra stabile Ausführung, Typ P
 EN High Precision Keyless Chuck, extra heavy duty version, type P

**TYPE P**

Ref.	Ø	d2	d1	l1	l2	Type	1	€
81.230.0812	0,3-8	B12	38	74	67	8P	81.412.0800	227,40
81.230.1016	0,5-10	B16	43	89	81	10P	81.412.1000	234,25
81.230.1316	1-13	B16	49	103	91	13P	81.412.1300	247,80
81.230.1616	3-16	B16	55	107	95	16P	81.412.1600	260,00
81.230.1618	3-16	B18	55	107	95	16P	81.412.1600	260,00

> 81.250 Phantom

NL Zelfspannende Precisieboorhouder, verzwaarde uitvoering, type XP
 FR Mandrin de perçage de précision auto-serrant, version extra renforcée, type XP
 ES Portabroca de precisión, cierre automático, versión extra macizo, tipo XP
 DE Selbstspannende Präzisionsbohrfutter, extra stabile Ausführung, Typ XP
 EN High Precision Keyless Chuck, extra heavy duty version, type XP

**TYPE XP**

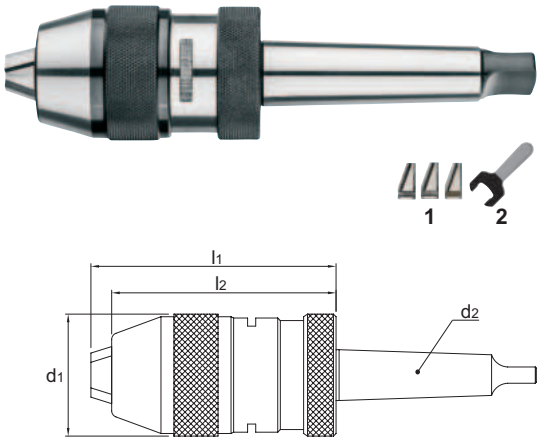
Ref.	Ø	d2	d1	l1	l2	Type	1	2 incl.	€
81.250.1316	1-13	B16	49	103	91	13XP	81.412.1300	81.413.1300	348,00
81.250.1616	3-16	B16	55	107	95	16XP	81.412.1600	81.413.1600	402,00
81.250.1618	3-16	B18	55	107	95	16XP	81.412.1600	81.413.1600	395,00

> 81.300 Phantom

NL Zelfspannende Precisieboorhouder, type XP, DIN 228-B
FR Mandrin de perçage de précision auto-serrant, type XP, DIN 228-B
ES Portabroca de precisión, cierre automático, tipo XP, DIN 228-B
DE Selbstspannende Präzisionsbohrfutter, Typ XP, DIN 228-B
EN High Precision Keyless Chuck, type XP, DIN 228-B



Ref.	Ø	d2	d1	l1	l2	Type	1	2 incl.	€
81.300.0208	0,3-8	MK 2	38	72	65	8XP	81.412.0800	81.413.0800	358,00
81.300.0213	1-13	MK 2	48	92	80	13XP	81.412.1300	81.413.1300	383,00
81.300.0313	1-13	MK 3	48	92	80	13XP	81.412.1300	81.413.1300	388,00
81.300.0316	3-16	MK 3	54	96	85	16XP	81.412.1600	81.413.1600	425,00
81.300.0413	1-13	MK 4	48	92	80	13XP	81.412.1300	81.413.1300	423,00
81.300.0416	3-16	MK 4	54	96	85	16XP	81.412.1600	81.413.1600	434,00

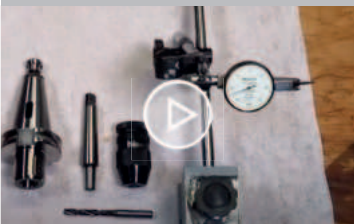
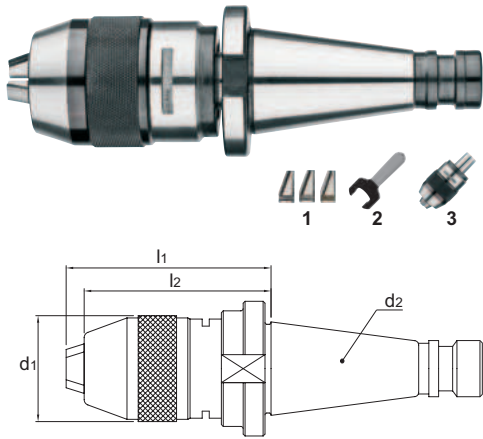


> 81.303 Phantom

NL Zelfspannende Precisieboorhouder, type XP, DIN 2080
FR Mandrin de perçage de précision auto-serrant, type XP, DIN 2080
ES Portabroca de precisión, cierre automático, tipo XP, DIN 2080
DE Selbstspannende Präzisionsbohrfutter, Typ XP, DIN 2080
EN High Precision Keyless Chuck, type XP, DIN 2080



Ref.	Ø	d2	d1	l1	l2	Type	1	2 incl.	3	€
81.303.4013	1-13	SK40	48	89	78	13XP	81.412.1300	81.413.1300	81.414.1300	702,00
81.303.4016	3-16	SK40	55	101	90	16XP	81.412.1600	81.413.1600	81.414.1640	769,00
81.303.5013	1-13	SK50	48	101	90	13XP	81.412.1300	81.413.1300	81.414.1300	817,00
81.303.5016	3-16	SK50	55	83	72	16XP	81.412.1600	81.413.1600	81.414.1650	847,00



NL Rondlooptrouwkeurigheid boorkop
FR Porte-outil de précision
ES Precisión de portabrocas
DE Rundlaufgenauigkeit Bohrfutter
EN Accuracy drill chuck

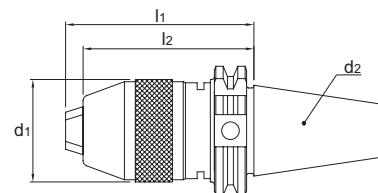
Watch me



www.phantom.eu

**> 81.304 Phantom**

- NL Zelfspannende Precisieboorhouder, type XP, ISO 7388-1 (DIN 69871)
 FR Mandrin de perçage de précision auto-serrant, type XP, ISO 7388-1 (DIN 69871)
 ES Portabroca de precisión, cierre automático, tipo XP, ISO 7388-1 (DIN 69871)
 DE Selbstspannende Präzisionsbohrfutter, Typ XP, ISO 7388-1 (DIN 69871)
 EN High Precision Keyless Chuck, type XP, ISO 7388-1 (DIN 69871)

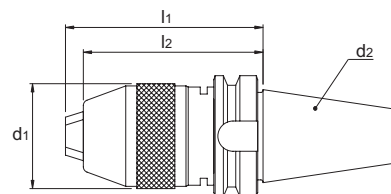


ISO	DIN	AD	SK	AT3	HRC	TYPE		
7388-1	69871				58 ^{±2}	XP		0,04

Ref.	Ø	d2	d1	l1	l2	Type	1	2 incl.	3	€
81.304.4013	1-13	SK40	48	91	80	13XP	81.412.1300	81.413.1300	81.414.1300	725,00
81.304.4016	3-16	SK40	55	108	97	16XP	81.412.1600	81.413.1600	81.414.1640	793,00
81.304.5013	1-13	SK50	48	89	78	13XP	81.412.1300	81.413.1300	81.414.1300	842,00
81.304.5016	3-16	SK50	55	89	76	16XP	81.412.1600	81.413.1600	81.414.1650	872,00

> 81.306 Phantom

- NL Zelfspannende Precisieboorhouder, type XP, ISO 7388-2 (MAS-BT)
 FR Mandrin de perçage de précision auto-serrant, type XP, ISO 7388-2 (MAS-BT)
 ES Portabroca de precisión, cierre automático, tipo XP, ISO 7388-2 (MAS-BT)
 DE Selbstspannende Präzisionsbohrfutter, Typ XP, ISO 7388-2 (MAS-BT)
 EN High Precision Keyless Chuck, type XP, ISO 7388-2 (MAS-BT)

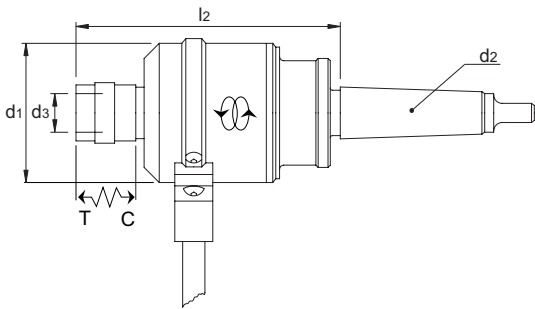
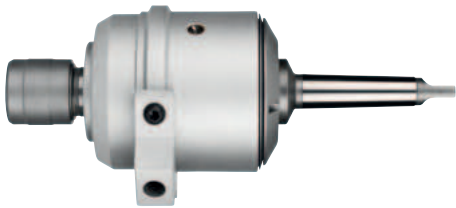


ISO	J	MAS-BT	AT3	HRC	TYPE		
7388-2	(A)			58 ^{±2}	XP		0,04

Ref.	Ø	d2	d1	l1	l2	Type	1	2 incl.	3	€
81.306.4013	1-13	BT40	48	97	86	13XP	81.412.1300	81.413.1300	81.414.1300	725,00
81.306.4016	3-16	BT40	55	116	105	16XP	81.412.1600	81.413.1600	81.414.1640	793,00
81.306.5013	1-13	BT50	48	108	97	13XP	81.412.1300	81.413.1300	81.414.1300	842,00
81.306.5016	3-16	BT50	55	106	95	16XP	81.412.1600	81.413.1600	81.414.1650	872,00

> 81.540 Phantom

- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, voor gebruik met tapinzetstukken, DIN 228-B
- FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, pour douilles porte-tarauds, DIN 228-B
- ES Aparato roscador, con dispositivo de inversión, con compensación de presión y de tracción, para casquillos de roscado, DIN 228-B
- DE Gewindeschneidmaschinen, mit Umkehrvorrichtung, mit Zug- und Druckausgleich, Für den Gebrauch mit Gewindebohrereinsatzstück, DIN 228-B
- EN Tapping Unit, with reversing arrangement, with push and pull compensation, for usage with bushes for tapping, DIN 228-B



Ref.	d2	d3	d1	l2	Ø	1	2	T	C	€
81.540.0212	MK 2	19	72	135	Gr. 1 - M2-M14	81.633/81.634	81.653/81.654	7	3	1.739,00
81.540.0220	MK 2	31	83	171	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	10	4	1.850,00
81.540.0320	MK 3	31	83	171	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	10	4	2.156,00



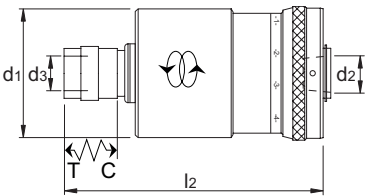
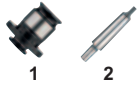
- NL Moment tapkop instellen
- FR Régler le couple d'un appareil à tarauder
- ES Ajustar el embrague
- DE Einstellen Drehmoment Gewindeschneidapparat
- EN Adjustable torque tapping head



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> 81.545 Phantom

- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, met instelbare slipkoppeling, voor gebruik met tapinzetstukken
- FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, à réglage de couple par friction, pour douilles porte-tarauds
- ES Aparato roscador, con dispositivo de inversión, con compensación de presión y de tracción, con ajuste de par por fricción, para casquillos de roscado
- DE Gewindeschneidmaschinen, mit Umkehrvorrichtung, mit Zug- und Druckausgleich, mit einstellbarer Rutschkupplung, Für den Gebrauch mit Gewindebohrereinsatzstück
- EN Tapping Unit, with reversing arrangement, with push and pull compensation, with adjustable torque coupling, for usage with bushes for tapping



Ref.	d2	d3	d1	l2	Ø	1	2 excl.	T	C	€
81.545.0007	J33	13	53	127	Gr. 0 - M2-M6	81.651	84.171	7	3	918,00
81.545.0012	J6	19	68	155	Gr. 1 - M2-M12	81.653/81.654	84.171	7	3	974,00
81.545.0020	M20	26	83	197	Gr. 1,5 - M8-M20	81.655	84.172	10	4	1.586,00



- NL Gebruik tapapparaat met omkeermecanisme
- FR Utilisation d'un appareil à tarauder à dispositif d'inversion
- ES Uso de un aparato de roscar con dispositivo de inversión
- DE Gebrauch Gewindeschneidapparat mit Umkehrvorrichtung
- EN Use of self-reversing tapping head

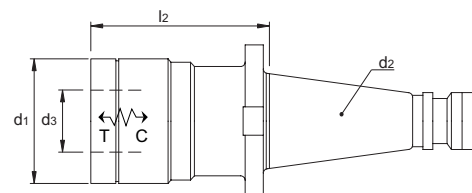


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> 81.613 Phantom

- NL Taphouder, met druk- en trekcompensatie, DIN 2080, voor gebruik met tapinzetstukken
- FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, DIN 2080, pour douilles porte-tarauds
- ES Portamachos de cambio rápido, con compensación de presión y de tracción, DIN 2080, para casquillos de roscado
- DE Gewindeschneidfutter, mit Zug- und Druckausgleich, DIN 2080, Für den Gebrauch mit Gewindebohrereinsatzstück
- EN Quick Change Tap Chuck, with push and pull compensation, DIN 2080, for usage with bushes for tapping

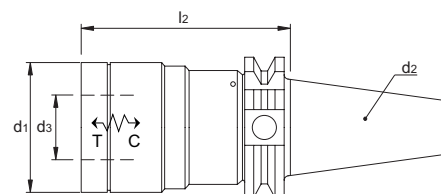
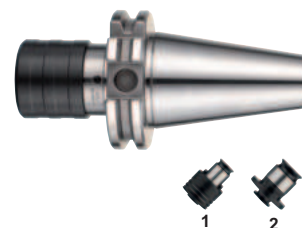


DIN 2080	A	SK	AT3	HRc 58 ^{±2}	C T
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Ref.	d2	d3	d1	l2	Ø	1	2	T	C	€
81.613.3012	SK30	19	38	51	Gr. 1 - M2-M14	81.633/81.634	81.653/81.654	9	9	420,00
81.613.3020	SK30	31	55	86	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	15	15	444,00
81.613.4012	SK40	19	38	53	Gr. 1 - M2-M14	81.633/81.634	81.653/81.654	9	9	226,50
81.613.4020	SK40	31	55	77	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	15	15	252,00
81.613.4033	SK40	48	79	118	Gr. 3 - M14-M45	81.639	-	24	24	513,00
81.613.5020	SK50	31	55	79	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	15	15	369,00
81.613.5033	SK50	48	79	125	Gr. 3 - M14-M45	81.639	-	24	24	523,00

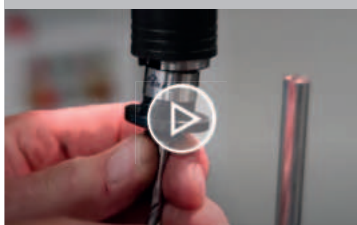
> 81.614 Phantom

- NL Taphouder, met druk- en trekcompensatie, voor gebruik met tapinzetstukken, ISO 7388-1 (DIN 69871)
- FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, pour douilles porte-tarauds, ISO 7388-1 (DIN 69871)
- ES Portamachos de cambio rápido, con compensación de presión y de tracción, para casquillos de roscado, ISO 7388-1 (DIN 69871)
- DE Gewindeschneidfutter, mit Zug- und Druckausgleich, Für den Gebrauch mit Gewindebohrereinsatzstück, ISO 7388-1 (DIN 69871)
- EN Quick Change Tap Chuck, with push and pull compensation, for usage with bushes for tapping, ISO 7388-1 (DIN 69871)



ISO 7388-1	DIN 69871	A	SK	AT3	HRc 58 ^{±2}	RFID	C T
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Ref.	d2	d3	d1	l2	Ø	1	2	T	C	€
81.614.4012	SK40	19	38	60	Gr. 1 - M2-M14	81.633/81.634	81.653/81.654	7.5	7.5	226,50
81.614.4020	SK40	31	55	98	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	12.5	12.5	252,00
81.614.4033	SK40	48	79	151	Gr. 3 - M14-M45	81.639	-	20	20	513,00
81.614.5012	SK50	19	38	60	Gr. 1 - M2-M14	81.633/81.634	81.653/81.654	7.5	7.5	360,00
81.614.5020	SK50	31	55	84	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	12.5	12.5	365,00
81.614.5033	SK50	48	79	139	Gr. 3 - M14-M45	81.639	-	20	20	513,00
81.614.5048	SK50	60	96	152	Gr. 4 - M39-M60	81.641	-	22.5	22.5	1.470,00



- NL Tappotje in taphouder
- FR Monter une douille porte-tarauds dans un mandrin à tarauder porte-douilles
- ES Sujetar un casquillo en un portamachos
- DE Gewindebohrereinsatzstück im Gewindescheidapparat
- EN Tap adapter in quickchange tapholder

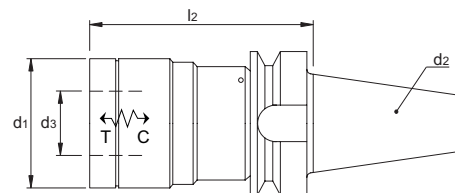
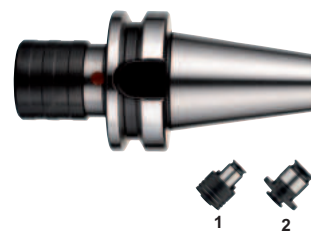
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> 81.616 Phantom

- NL Taphouder, met druk- en trekcompensatie, voor gebruik met tapinzetstukken, ISO 7388-2 (MAS-BT)
 FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, pour douilles porte-tarauds, ISO 7388-2 (MAS-BT)
 ES Portamachos de cambio rápido, con compensación de presión y de tracción, para casquillos de roscado, ISO 7388-2 (MAS-BT)
 DE Gewindeschneidfutter, mit Zug- und Druckausgleich, Für den Gebrauch mit Gewindebohrereinsatzstück, ISO 7388-2 (MAS-BT)
 EN Quick Change Tap Chuck, with push and pull compensation, for usage with bushes for tapping, ISO 7388-2 (MAS-BT)

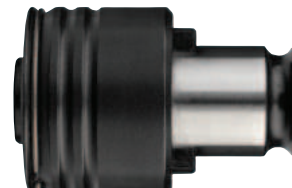
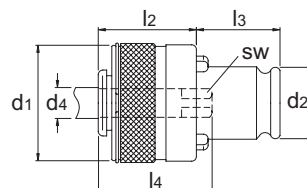


ISO 7388-2	J (A)	MAS-BT	AT3	HRc 58 ^{±2}	C T
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Ref.	d2	d3	d1	l2	Ø	1	2	T	C	€
81.616.4012	BT40	19	38	67.5	Gr. 1 - M2-M14	81.633/81.634	81.653/81.654	7.5	7.5	226,50
81.616.4020	BT40	31	55	94.5	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	12.5	12.5	252,00
81.616.4033	BT40	48	79	164.5	Gr. 3 - M14-M45	81.639	-	22.5	22.5	463,00
81.616.5012	BT50	19	38	77	Gr. 1 - M2-M14	81.633/81.634	81.653/81.654	7.5	7.5	385,00
81.616.5020	BT50	31	55	102.5	Gr. 2 - M6-M27	81.636/81.637	81.656/81.657	12.5	12.5	369,00
81.616.5033	BT50	48	79	142.5	Gr. 3 - M14-M45	81.639	-	20	20	463,00
81.616.5048	BT50	60	96	164.5	Gr. 4 - M39-M60	81.641	-	22.5	22.5	1.474,00

> 81.633 Phantom

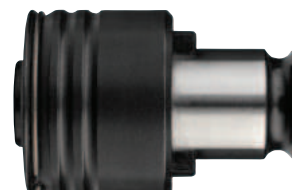
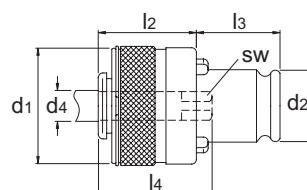
- NL Tapinzetstuk met ratel, DIN, Gr. 1
 FR Douille porte-tarauds avec limiteur de couple, DIN, Taille 1
 ES Casquillo de roscado con embrague de seguridad, DIN, Tam. 1
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN, Gr. 1
 EN Quick Change Tap Adapter with overload clutch, DIN, Size 1



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4	€
81.633.0201	M2	DIN 371	2.8	2.1	32	19	25	21.5	25	53,15
81.633.0301	M3	DIN 371	3.5	2.7	32	19	25	21.5	25	53,15
81.633.0351	M3,5	DIN 371	4	3	32	19	25	21.5	25	53,15
81.633.0401	M4	DIN 371	4.5	3.4	32	19	25	21.5	25	53,15
81.633.0406	M4	DIN 376	2.8	2.1	32	19	25	21.5	25	53,15
81.633.0501	M5	DIN 371	6	4.9	32	19	25	21.5	25	53,15
81.633.0506	M5	DIN 376	3.5	2.7	32	19	25	21.5	25	53,15
81.633.0601	M6	DIN 371	6	4.9	32	19	25	21.5	25	53,15
81.633.0606	M6	DIN 376	4.5	3.4	32	19	25	21.5	25	53,15
81.633.0801	M8	DIN 371	8	6.2	32	19	25	21.5	25	53,15
81.633.0806	M8	DIN 376	6	4.9	32	19	25	21.5	25	53,15
81.633.1001	M10	DIN 371	10	8	32	19	25	21.5	25	53,15
81.633.1006	M10	DIN 376	7	5.5	32	19	25	21.5	25	53,15
81.633.1206	M12	DIN 376	9	7	32	19	25	21.5	25	53,15
81.633.1406	M14	DIN 376	11	9	32	19	25	21.5	25	53,15

> 81.636 Phantom

- NL Tapinzetstuk met ratel, DIN, Gr. 2
 FR Douille porte-tarauds avec limiteur de couple, DIN, Taille 2
 ES Casquillo de roscado con embrague de seguridad, DIN, Tam. 2
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN, Gr. 2
 EN Quick Change Tap Adapter with overload clutch, DIN, Size 2

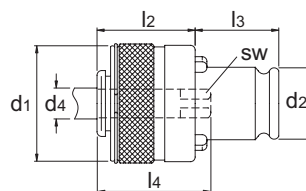


Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4	€
81.636.0601	M6	DIN 371	6	4.9	50	31	34	35	34	73,95
81.636.0801	M8	DIN 371	8	6.2	50	31	34	35	34	73,95
81.636.0806	M8	DIN 376	6	4.9	50	31	34	35	34	73,95
81.636.1001	M10	DIN 371	10	8	50	31	34	35	34	73,95
81.636.1006	M10	DIN 376	7	5.5	50	31	34	35	34	73,95
81.636.1206	M12	DIN 376	9	7	50	31	34	35	34	73,95
81.636.1406	M14	DIN 376	11	9	50	31	34	35	34	73,95
81.636.1606	M16	DIN 376	12	9	50	31	34	35	34	73,95
81.636.1806	M18	DIN 376	14	11	50	31	34	35	34	73,95
81.636.2006	M20	DIN 376	16	12	50	31	34	35	34	73,95
81.636.2206	M22	DIN 376	18	14.5	50	31	34	35	34	73,95
81.636.2406	M24	DIN 376	18	14.5	50	31	34	35	34	73,95
81.636.2706	M27	DIN 376	20	16	50	31	34	35	34	73,95



> 81.639 Phantom

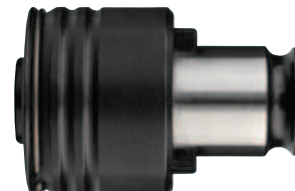
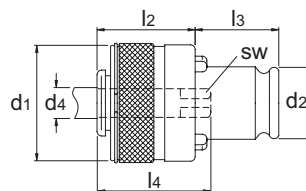
NL Tapinzetstuk met ratel, DIN, Gr. 3
 FR Douille porte-tarauds avec limiteur de couple, DIN, Taille 3
 ES Casquillo de roscado con embrague de seguridad, DIN, Tam. 3
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN, Gr. 3
 EN Quick Change Tap Adapter with overload clutch, DIN, Size 3



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4	€
81.639.1406	M14	DIN 376	11	9	72	48	45	55.5	45	182,60
81.639.1606	M16	DIN 376	12	9	72	48	45	55.5	45	182,60
81.639.1806	M18	DIN 376	14	11	72	48	45	55.5	45	182,60
81.639.2006	M20	DIN 376	16	12	72	48	45	55.5	45	182,60
81.639.2206	M22	DIN 376	18	14.5	72	48	45	55.5	45	182,60
81.639.2406	M24	DIN 376	18	14.5	72	48	45	55.5	45	182,60
81.639.2706	M27	DIN 376	20	16	72	48	45	55.5	45	208,00
81.639.3006	M30	DIN 376	22	18	72	48	45	55.5	45	182,60
81.639.3306	M33	DIN 376	25	20	72	48	45	55.5	45	197,00
81.639.3606	M36	DIN 376	28	22	72	48	45	55.5	45	208,00
81.639.3906	M39	DIN 376	32	24	72	48	45	55.5	45	208,00
81.639.4206	M42	DIN 376	32	24	72	48	45	55.5	45	208,00
81.639.4506	M45	DIN 376	36	29	72	48	45	55.5	45	208,00

> 81.641 Phantom

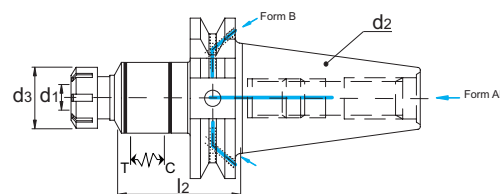
NL Tapinzetstuk met ratel, DIN, Gr. 4
 FR Douille porte-tarauds avec limiteur de couple, DIN, Taille 4
 ES Casquillo de roscado con embrague de seguridad, DIN, Tam. 4
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN, Gr. 4
 EN Quick Change Tap Adapter with overload clutch, DIN, Size 4



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4	€
81.641.3906	M39	DIN 376	32	24	95	60	68	63	68	293,00
81.641.4206	M42	DIN 376	32	26	95	60	68	63	68	293,00
81.641.4506	M45	DIN 376	36	29	95	60	68	63	68	293,00
81.641.4806	M48	DIN 376	36	29	95	60	68	63	68	293,00
81.641.5206	M52	DIN 376	40	32	95	60	68	63	68	293,00
81.641.5606	M56	DIN 376	45	35	95	60	68	63	68	293,00
81.641.6006	M60	DIN 376	45	35	95	60	68	63	68	293,00

> 81.684 Phantom

NL Synchro Taphouder voor ER spantangen (met vierkant), ISO 7388-1 (DIN 69871)
 FR Mandrin à tarauder Synchro pour utilisation avec pinces ER (avec carré d'entraînement), ISO 7388-1 (DIN 69871)
 ES Portamachos Synchro para uso con ER pinzas (con cuadrado interior), ISO 7388-1 (DIN 69871)
 DE Synchro Gewindeschneidfutter für ER-Spannzangen (mit Vierkant), ISO 7388-1 (DIN 69871)
 EN Synchro Tapping Holder for usage with ER collets (with square socket), ISO 7388-1 (DIN 69871)



ISO 7388-1	DIN 69871	AD/AF (AD/B)	SK	AT3	HRC 58±2	RFID	ISO 15488	DIN 6499	ER	MICRO T	G2.5 25.000 RPM
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Ref.	d2	d1	Ø	l2	d3	T	C	1 excl.	€
81.684.4016	SK40	ER16	1-10	79	32	0.5	0.5	82.880	465,00
81.684.4025	SK40	ER25	3,5-16	84	42	0.5	0.5	82.885	524,00
81.684.5025	SK50	ER25	3,5-16	84	42	0.5	0.5	82.885	609,00



NL Tap in tappotje monteren en demonteren
 FR Monter et démonter un taraud dans une douille porte-tarauds
 ES Montar y desmontar un macho en un casquillo de roscado
 DE Gewindebohrer montieren und demontieren im Gewindebohrereinsatzstück
 EN Mounting tap in quickchange adapter

Watch me



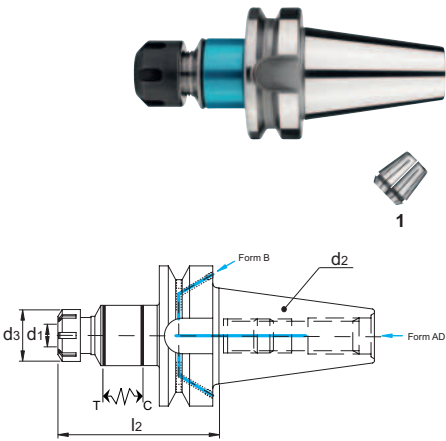
www.phantom.eu

> 81.686 Phantom

- NL Synchro Taphouder voor ER spantangen (met vierkant), ISO 7388-2 (MAS-BT)
- FR Mandrin à tarauder Synchro pour utilisation avec pinces ER (avec carré d'entraînement), ISO 7388-2 (MAS-BT)
- ES Portamachos Synchro para uso con ER pinzas (con cuadrado interior), ISO 7388-2 (MAS-BT)
- DE Synchro Gewindeschneidfutter für ER-Spannzangen (mit Vierkant), ISO 7388-2 (MAS-BT)
- EN Synchro Tapping Holder for usage with ER collets (with square socket), ISO 7388-2 (MAS-BT)

ISO 7388-2	JD/JF (AD/B)	MAS-BT	AT3	HRc 58 ^{±2}	ISO 15488	DIN 6499	ER	MICRO C T
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Ref.	d2	d1	Ø	l2	d3	T	C	1 excl.	€
81.686.4016	BT40	ER16	1-10	79	32	0.5	0.5	82.880	465,00
81.686.4025	BT40	ER25	3,5-16	89	42	0.5	0.5	82.885	524,00
81.686.5025	BT50	ER25	3,5-16	110	42	0.5	0.5	82.885	609,00

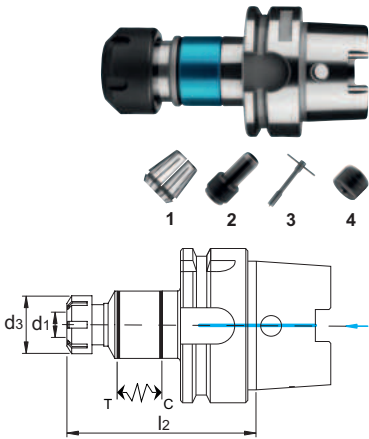


> 81.687 Phantom

- NL Synchro Taphouder voor ER spantangen (met vierkant), ISO 12164 (DIN 69893)
- FR Mandrin à tarauder Synchro pour utilisation avec pinces ER (avec carré d'entraînement), ISO 12164 (DIN 69893)
- ES Portamachos Synchro para uso con ER pinzas (con cuadrado interior), ISO 12164 (DIN 69893)
- DE Synchro Gewindeschneidfutter für ER-Spannzangen (mit Vierkant), ISO 12164 (DIN 69893)
- EN Synchro Tapping Holder for usage with ER collets (with square socket), ISO 12164 (DIN 69893)

ISO 12164	A	HSK-A	AT3	HRc 58 ^{±2}	RFID	ISO 15488	DIN 6499	ER	MICRO C T	G2,5 25.000 RPM
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Ref.	d2	d1	Ø	l2	d3	T	C	1 excl.	2 excl.	3 excl.	4 excl.	€
81.687.0631	HSK63A	ER16	1-10	89	32	0.5	0.5	82.880	84.790.1800	84.791.1800	84.789.1800	662,00
81.687.0632	HSK63A	ER25	3,5-16	94	42	0.5	0.5	82.885	84.790.1800	84.791.1800	84.789.1800	694,00
81.687.1002	HSK100A	ER25	3,5-16	101	42	0.5	0.5	82.885	84.790.1800	84.791.1800	84.789.1800	806,00

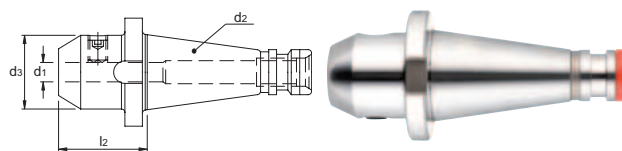


- NL Demonteren tap en spantang uit synchrohouder
- FR Démonter un taraud et une pince d'un mandrin à tarauder synchro
- ES Desmontar macho y pinza de un portamachos Synchro
- DE Demontieren Gewindebohrer und Spannzange aus Synchro Gewindeschneidhalter
- EN Remove tap and collet from synchro-toolholder



**> 82.153 Phantom**

NL Weldonhouder, DIN 2080
FR Porte-outils, DIN 2080
ES Portaherramientas Weldon, DIN 2080
DE Weldon-Halter, DIN 2080
EN End Mill Holder (Weldon), DIN 2080



1

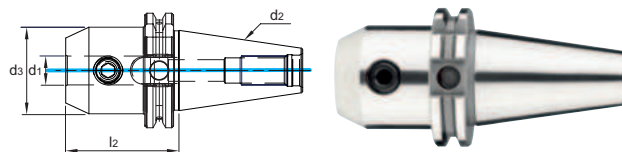
DIN 2080	AD	SK	AT3	HRC 58 ^{±2}	DIN 6359	DIN 1835-B	0,005
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Ref.	d2	d1	l2	d3	M	1 incl.	€
82.153.3006	SK30	6	40	25	M12	82.159.0600	54,00
82.153.3008	SK30	8	40	28	M12	82.159.0800	45,90
82.153.3010	SK30	10	40	35	M12	82.159.1000	45,90
82.153.3012	SK30	12	40	42	M12	82.159.1200	45,90
82.153.3016	SK30	16	50	48	M12	82.159.1400	45,90
82.153.3020	SK30	20	63	52	M12	82.159.1600	45,90
82.153.4006	SK40	6	50	25	M16	82.159.0600	46,45
82.153.4008	SK40	8	50	28	M16	82.159.0800	47,35
82.153.4010	SK40	10	50	35	M16	82.159.1000	46,45
82.153.4012	SK40	12	50	42	M16	82.159.1200	46,45
82.153.4016	SK40	16	63	48	M16	82.159.1400	46,45
82.153.4020	SK40	20	63	52	M16	82.159.1600	46,45

Ref.	d2	d1	l2	d3	M	1 incl.	€
82.153.4025	SK40	25	80	65	M16	82.159.1800	47,35
82.153.4032	SK40	32	80	72	M16	82.159.2000	47,35
82.153.5006	SK50	6	63	25	M24	82.159.0600	52,50
82.153.5008	SK50	8	63	28	M24	82.159.0800	49,35
82.153.5010	SK50	10	63	35	M24	82.159.1000	49,35
82.153.5012	SK50	12	63	42	M24	82.159.1200	49,35
82.153.5014	SK50	14	63	44	M24	82.159.1200	49,35
82.153.5016	SK50	16	63	48	M24	82.159.1400	85,60
82.153.5020	SK50	20	63	52	M24	82.159.1600	85,60
82.153.5025	SK50	25	80	65	M24	82.159.1800	87,40
82.153.5032	SK50	32	80	72	M24	82.159.2000	87,40
82.153.5040	SK50	40	90	80	M24	82.159.2000	95,55

> 82.154 Phantom

NL Weldonhouder, ISO 7388-1 (DIN 69871)
FR Porte-outils, ISO 7388-1 (DIN 69871)
ES Portaherramientas Weldon, ISO 7388-1 (DIN 69871)
DE Weldon-Halter, ISO 7388-1 (DIN 69871)
EN End Mill Holder (Weldon), ISO 7388-1 (DIN 69871)



1

ISO 7388-1	DIN 69871	AD	SK	AT3	HRC 58 ^{±2}	RFID	DIN 6359	DIN 1835-B	0,005
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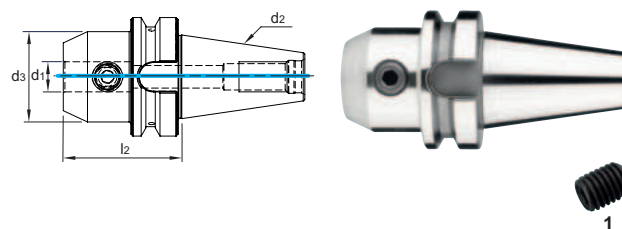
G6.3
15.000
RPM

Ref.	d2	d1	l2	d3	M	1 incl.	€
82.154.4061	SK40	6	50	25	M16	82.159.0600	47,00
82.154.4062	SK40	6	100	25	M16	82.159.0600	55,80
82.154.4066	SK40	6	160	25	M16	82.159.0600	92,55
82.154.4081	SK40	8	50	28	M16	82.159.0800	44,05
82.154.4082	SK40	8	100	28	M16	82.159.0800	51,40
82.154.4086	SK40	8	160	28	M16	82.159.0800	89,65
82.154.4101	SK40	10	50	35	M16	82.159.1000	44,05
82.154.4102	SK40	10	100	35	M16	82.159.1000	51,40
82.154.4106	SK40	10	160	35	M16	82.159.1000	89,65
82.154.4121	SK40	12	50	42	M16	82.159.1200	44,05
82.154.4122	SK40	12	100	42	M16	82.159.1200	51,40
82.154.4126	SK40	12	160	42	M16	82.159.1200	89,65
82.154.4141	SK40	14	50	44	M16	82.159.1200	44,05
82.154.4142	SK40	14	100	44	M16	82.159.1200	51,40
82.154.4146	SK40	14	160	44	M16	82.159.1200	89,65
82.154.4161	SK40	16	63	48	M16	82.159.1400	44,05
82.154.4162	SK40	16	100	48	M16	82.159.1400	51,40
82.154.4166	SK40	16	160	48	M16	82.159.1400	89,65
82.154.4181	SK40	18	63	50	M16	82.159.1400	44,05
82.154.4182	SK40	18	100	50	M16	82.159.1400	51,40
82.154.4186	SK40	18	160	50	M16	82.159.1400	89,65
82.154.4201	SK40	20	63	52	M16	82.159.1600	44,05
82.154.4202	SK40	20	100	52	M16	82.159.1600	51,40
82.154.4206	SK40	20	160	52	M16	82.159.1600	89,65
82.154.4252	SK40	25	100	65	M16	82.159.1800	51,40
82.154.4256	SK40	25	160	65	M16	82.159.1800	96,95
82.154.4322	SK40	32	100	72	M16	82.159.2000	54,40
82.154.4326	SK40	32	160	72	M16	82.159.2000	102,85
82.154.4402	SK40	40	115	80	M16	82.159.2000	67,60
82.154.5006	SK50	6	63	25	M24	82.159.0600	52,50
82.154.5008	SK50	8	63	28	M24	82.159.0800	49,35
82.154.5010	SK50	10	63	35	M24	82.159.1000	49,35

Ref.	d2	d1	l2	d3	M	1 incl.	€
82.154.5061	SK50	6	63	25	M24	82.159.0600	66,10
82.154.5062	SK50	6	100	25	M24	82.159.0600	79,35
82.154.5066	SK50	6	160	25	M24	82.159.0600	119,00
82.154.5081	SK50	8	63	28	M24	82.159.0800	63,20
82.154.5082	SK50	8	100	28	M24	82.159.0800	77,85
82.154.5086	SK50	8	160	28	M24	82.159.0800	116,10
82.154.5101	SK50	10	63	35	M24	82.159.1000	63,20
82.154.5102	SK50	10	100	35	M24	82.159.1000	77,85
82.154.5106	SK50	10	160	35	M24	82.159.1000	116,10
82.154.5121	SK50	12	63	42	M24	82.159.1200	63,20
82.154.5122	SK50	12	100	42	M24	82.159.1200	77,85
82.154.5126	SK50	12	160	42	M24	82.159.1200	116,10
82.154.5141	SK50	14	63	44	M24	82.159.1200	63,20
82.154.5142	SK50	14	100	44	M24	82.159.1200	77,85
82.154.5146	SK50	14	160	44	M24	82.159.1200	116,10
82.154.5161	SK50	16	63	48	M24	82.159.1400	63,20
82.154.5162	SK50	16	100	48	M24	82.159.1400	77,85
82.154.5166	SK50	16	160	48	M24	82.159.1400	116,10
82.154.5181	SK50	18	63	50	M24	82.159.1400	63,20
82.154.5182	SK50	18	100	50	M24	82.159.1400	77,85
82.154.5186	SK50	18	160	50	M24	82.159.1400	116,10
82.154.5201	SK50	20	63	52	M24	82.159.1600	63,20
82.154.5202	SK50	20	100	52	M24	82.159.1600	77,85
82.154.5206	SK50	20	160	52	M24	82.159.1600	116,10
82.154.5251	SK50	25	80	65	M24	82.159.1800	70,50
82.154.5252	SK50	25	100	65	M24	82.159.1800	92,55
82.154.5256	SK50	25	160	65	M24	82.159.1800	119,00
82.154.5322	SK50	32	100	72	M24	82.159.2000	77,85
82.154.5326	SK50	32	160	72	M24	82.159.2000	123,40
82.154.5404	SK50	40	120	80	M24	82.159.2000	83,75
82.154.5406	SK50	40	160	80	M24	82.159.2000	132,20

> 82.156 Phantom

NL Weldonhouder, ISO 7388-2 (MAS-BT)
 FR Porte-outils, ISO 7388-2 (MAS-BT)
 ES Portaherramientas Weldon, ISO 7388-2 (MAS-BT)
 DE Weldon-Halter, ISO 7388-2 (MAS-BT)
 EN End Mill Holder (Weldon), ISO 7388-2 (MAS-BT)



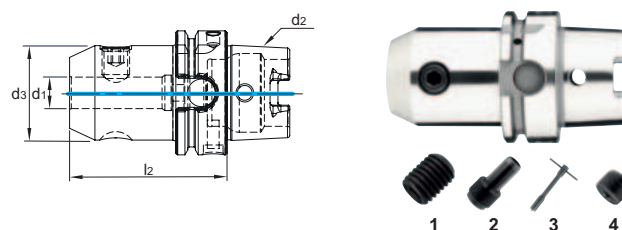
ISO	JD	MAS-BT	AT3	HRc	DIN	DIN		G6.3
7388-2	(AD)			58 ^{±2}	6359	1835-B	0,005	15.000 RPM

Ref.	d2	d1	l2	d3	M	1 incl.	€
82.156.4061	BT40	6	50	25	M16	82.159.0600	47,00
82.156.4062	BT40	6	100	25	M16	82.159.0600	55,80
82.156.4066	BT40	6	160	25	M16	82.159.0600	92,55
82.156.4081	BT40	8	50	28	M16	82.159.0800	44,05
82.156.4082	BT40	8	100	28	M16	82.159.0800	51,40
82.156.4086	BT40	8	160	28	M16	82.159.0800	89,65
82.156.4101	BT40	10	63	35	M16	82.159.1000	44,05
82.156.4102	BT40	10	100	35	M16	82.159.1000	51,40
82.156.4106	BT40	10	160	35	M16	82.159.1000	89,65
82.156.4121	BT40	12	63	42	M16	82.159.1200	44,05
82.156.4122	BT40	12	100	42	M16	82.159.1200	51,40
82.156.4126	BT40	12	160	42	M16	82.159.1200	89,65
82.156.4141	BT40	14	63	44	M16	82.159.1200	44,05
82.156.4142	BT40	14	100	44	M16	82.159.1200	51,40
82.156.4146	BT40	14	160	44	M16	82.159.1200	89,65
82.156.4161	BT40	16	63	48	M16	82.159.1400	44,05
82.156.4162	BT40	16	100	48	M16	82.159.1400	51,40
82.156.4166	BT40	16	160	48	M16	82.159.1400	89,65
82.156.4181	BT40	18	63	50	M16	82.159.1400	44,05
82.156.4182	BT40	18	100	50	M16	82.159.1400	51,40
82.156.4186	BT40	18	160	50	M16	82.159.1400	89,65
82.156.4201	BT40	20	63	52	M16	82.159.1600	44,05
82.156.4202	BT40	20	100	52	M16	82.159.1600	51,40
82.156.4206	BT40	20	160	52	M16	82.159.1600	89,65
82.156.4252	BT40	25	90	65	M16	82.159.1800	51,40
82.156.4256	BT40	25	160	65	M16	82.159.1800	96,95
82.156.4322	BT40	32	100	72	M16	82.159.2000	54,40
82.156.4326	BT40	32	160	72	M16	82.159.2000	102,85
82.156.4402	BT40	40	105	80	M16	82.159.2000	67,60
82.156.5006	BT50	6	63	25	M24	82.159.0600	52,50
82.156.5014	BT50	14	80	44	M24	82.159.1200	49,35

Ref.	d2	d1	l2	d3	M	1 incl.	€
82.156.5061	BT50	6	63	25	M24	82.159.0600	79,35
82.156.5062	BT50	6	100	25	M24	82.159.0600	91,05
82.156.5066	BT50	6	160	25	M24	82.159.0600	149,85
82.156.5081	BT50	8	63	28	M24	82.159.0800	79,35
82.156.5082	BT50	8	100	28	M24	82.159.0800	91,05
82.156.5086	BT50	8	160	28	M24	82.159.0800	149,85
82.156.5101	BT50	10	80	35	M24	82.159.1000	79,35
82.156.5102	BT50	10	100	35	M24	82.159.1000	91,05
82.156.5106	BT50	10	160	35	M24	82.159.1000	145,45
82.156.5121	BT50	12	80	42	M24	82.159.1200	79,35
82.156.5122	BT50	12	100	42	M24	82.159.1200	91,05
82.156.5126	BT50	12	160	42	M24	82.159.1200	145,45
82.156.5141	BT50	14	80	44	M24	82.159.1200	79,35
82.156.5142	BT50	14	100	44	M24	82.159.1200	91,05
82.156.5146	BT50	14	160	44	M24	82.159.1200	151,35
82.156.5161	BT50	16	80	48	M24	82.159.1400	79,35
82.156.5162	BT50	16	100	48	M24	82.159.1400	91,05
82.156.5166	BT50	16	160	48	M24	82.159.1400	145,45
82.156.5181	BT50	18	80	50	M24	82.159.1400	79,35
82.156.5182	BT50	18	100	50	M24	82.159.1400	91,05
82.156.5186	BT50	18	160	50	M24	82.159.1400	151,35
82.156.5201	BT50	20	80	52	M24	82.159.1600	79,35
82.156.5202	BT50	20	100	52	M24	82.159.1600	91,05
82.156.5206	BT50	20	160	52	M24	82.159.1600	145,45
82.156.5252	BT50	25	100	65	M24	82.159.1800	83,75
82.156.5256	BT50	25	160	65	M24	82.159.1800	151,35
82.156.5322	BT50	32	105	72	M24	82.159.2000	89,65
82.156.5326	BT50	32	160	72	M24	82.159.2000	151,35
82.156.5402	BT50	40	115	80	M24	82.159.2000	98,45
82.156.5406	BT50	40	160	80	M24	82.159.2000	167,50

> 82.157 Phantom

NL Weldonhouder, ISO 12164 (DIN 69893)
 FR Porte-outils, ISO 12164 (DIN 69893)
 ES Portaherramientas Weldon, ISO 12164 (DIN 69893)
 DE Weldon-Halter, ISO 12164 (DIN 69893)
 EN End Mill Holder (Weldon), ISO 12164 (DIN 69893)

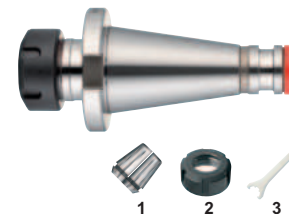
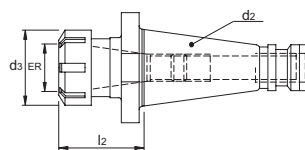


ISO	A	HSK-A	AT3	HRc	RFID	DIN	DIN		G6.3
12164				58 ^{±2}		6359	1835-B	0,005	20.000 RPM

Ref.	d2	d1	l2	d3	M	1 incl.	2 excl.	3 excl.	4 excl.	€
82.157.6061	HSK63A	6	65	25	M18X1	82.159.0600	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6062	HSK63A	6	100	25	M18X1	82.159.0600	84.790.1800	84.791.1800	84.789.1800	139,55
82.157.6066	HSK63A	6	160	25	M18X1	82.159.0600	84.790.1800	84.791.1800	84.789.1800	180,15
82.157.6081	HSK63A	8	65	28	M18X1	82.159.0800	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6082	HSK63A	8	100	28	M18X1	82.159.0800	84.790.1800	84.791.1800	84.789.1800	139,55
82.157.6086	HSK63A	8	160	28	M18X1	82.159.0800	84.790.1800	84.791.1800	84.789.1800	180,15
82.157.6101	HSK63A	10	65	35	M18X1	82.159.1000	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6102	HSK63A	10	100	35	M18X1	82.159.1000	84.790.1800	84.791.1800	84.789.1800	139,55
82.157.6106	HSK63A	10	160	35	M18X1	82.159.1000	84.790.1800	84.791.1800	84.789.1800	180,15
82.157.6121	HSK63A	12	80	42	M18X1	82.159.1200	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6122	HSK63A	12	100	42	M18X1	82.159.1200	84.790.1800	84.791.1800	84.789.1800	139,55
82.157.6126	HSK63A	12	160	42	M18X1	82.159.1200	84.790.1800	84.791.1800	84.789.1800	180,15
82.157.6141	HSK63A	14	80	44	M18X1	82.159.1200	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6142	HSK63A	14	100	44	M18X1	82.159.1200	84.790.1800	84.791.1800	84.789.1800	139,55
82.157.6146	HSK63A	14	160	44	M18X1	82.159.1200	84.790.1800	84.791.1800	84.789.1800	180,15
82.157.6161	HSK63A	16	80	48	M18X1	82.159.1400	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6162	HSK63A	16	100	48	M18X1	82.159.1400	84.790.1800	84.791.1800	84.789.1800	139,55
82.157.6166	HSK63A	16	160	48	M18X1	82.159.1400	84.790.1800	84.791.1800	84.789.1800	180,15
82.157.6181	HSK63A	18	80	50	M18X1	82.159.1400	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6201	HSK63A	20	80	52	M18X1	82.159.1600	84.790.1800	84.791.1800	84.789.1800	116,10
82.157.6202	HSK63A	20	100	52	M18X1	82.159.1600	84.790.1800	84.791.1800	84.789.1800	139,55
82.157.6206	HSK63A	20	160	52	M18X1	82.159.1600	84.790.1800	84.791.1800	84.789.1800	180,15
82.157.6252	HSK63A	25	110	65	M18X1	82.159.1800	84.790.1800	84.791.1800	84.789.1800	136,65
82.157.6254	HSK63A	25	125	65	M18X1	82.159.1800	84.790.1800	84.791.1800	84.789.1800	157,25
82.157.6256	HSK63A	25	160	65	M18X1	82.159.1800	84.790.1800	84.791.1800	84.789.1800	186,60
82.157.6322	HSK63A	32	110	72	M18X1	82.159.2000	84.790.1800	84.791.1800	84.789.1800	143,95
82.157.6326	HSK63A	32	160	72	M18X1	82.159.2000	84.790.1800	84.791.1800	84.789.1800	193,95

**> 82.513 Phantom**

NL ER Spantanghouder, DIN 2080
FR Mandrin porte-pinces ER, DIN 2080
ES Portapinzas ER, DIN 2080
DE ER-Spannzangenfutter, DIN 2080
EN ER Collet Chuck, DIN 2080

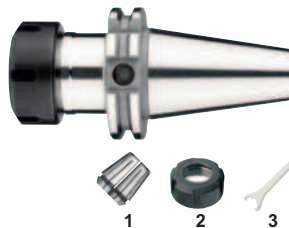
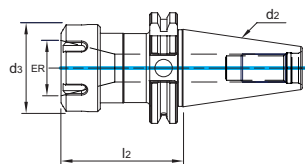


DIN	AD	SK	AT3	HRc	ISO	DIN	ER	0,005
2080				58 ^{±2}	15488	6499		

Ref.	d2	Type	Ø	l2	d3	M	1 excl.	2 incl.	3 excl.	€
82.513.3065	SK30	ER32	2-20	50	50	M12	ER32	82.960.3200	82.990.3200	48,70
82.513.4053	SK40	ER25	1-20	50	42	M16	ER25	82.960.2500	82.990.2500	48,70
82.513.4063	SK40	ER32	2-20	50	50	M16	ER32	82.960.3200	82.990.3200	48,70
82.513.4071	SK40	ER40	3-30	80	63	M16	ER40	82.960.4000	82.990.4000	54,10
82.513.5071	SK50	ER40	3-30	63	63	M24	ER40	82.960.4000	82.990.4000	98,10

> 82.514 Phantom

NL ER Spantanghouder, ISO 7388-1 (DIN 69871)
FR Mandrin porte-pinces ER, ISO 7388-1 (DIN 69871)
ES Portapinzas ER, ISO 7388-1 (DIN 69871)
DE ER-Spannzangenfutter, ISO 7388-1 (DIN 69871)
EN ER Collet Chuck, ISO 7388-1 (DIN 69871)

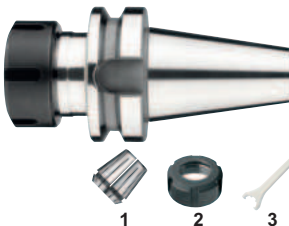
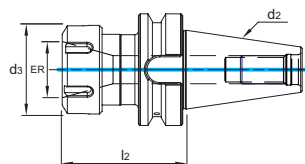


ISO	DIN	AD	SK	AT3	HRc	RFID	ISO	DIN	ER	0,005	G6.3 15.000 RPM
7388-1	69871				58 ^{±2}		15488	6499			

Ref.	d2	Type	Ø	l2	d3	M	1 excl.	2 incl.	3 excl.	€
82.514.4161	SK40	ER16	1-12	70	32	M16	ER16	82.960.1600	82.990.1600	57,30
82.514.4162	SK40	ER16	1-12	100	32	M16	ER16	82.960.1600	82.990.1600	64,65
82.514.4166	SK40	ER16	1-12	160	32	M16	ER16	82.960.1600	82.990.1600	108,70
82.514.4251	SK40	ER25	1-20	70	42	M16	ER25	82.960.2500	82.990.2500	57,30
82.514.4252	SK40	ER25	1-20	100	42	M16	ER25	82.960.2500	82.990.2500	72,00
82.514.4256	SK40	ER25	1-20	160	42	M16	ER25	82.960.2500	82.990.2500	108,70
82.514.4321	SK40	ER32	2-20	70	50	M16	ER32	82.960.3200	82.990.3200	60,20
82.514.4322	SK40	ER32	2-20	100	50	M16	ER32	82.960.3200	82.990.3200	72,00
82.514.4326	SK40	ER32	2-20	160	50	M16	ER32	82.960.3200	82.990.3200	111,65
82.514.4401	SK40	ER40	3-30	70	63	M16	ER40	82.960.4000	82.990.4000	63,20
82.514.4402	SK40	ER40	3-30	100	63	M16	ER40	82.960.4000	82.990.4000	80,80
82.514.4406	SK40	ER40	3-30	160	63	M16	ER40	82.960.4000	82.990.4000	116,10
82.514.5162	SK50	ER16	1-12	100	32	M24	ER16	82.960.1600	82.990.1600	108,70
82.514.5166	SK50	ER16	1-12	160	32	M24	ER16	82.960.1600	82.990.1600	148,35
82.514.5251	SK50	ER25	1-20	70	42	M24	ER25	82.960.2500	82.990.2500	89,65
82.514.5252	SK50	ER25	1-20	100	42	M24	ER25	82.960.2500	82.990.2500	108,70
82.514.5256	SK50	ER25	1-20	160	42	M24	ER25	82.960.2500	82.990.2500	148,35
82.514.5321	SK50	ER32	2-20	70	50	M24	ER32	82.960.3200	82.990.3200	92,55
82.514.5322	SK50	ER32	2-20	100	50	M24	ER32	82.960.3200	82.990.3200	129,30
82.514.5326	SK50	ER32	2-20	160	50	M24	ER32	82.960.3200	82.990.3200	148,35
82.514.5401	SK50	ER40	3-30	80	63	M24	ER40	82.960.4000	82.990.4000	92,55
82.514.5402	SK50	ER40	3-30	100	63	M24	ER40	82.960.4000	82.990.4000	132,20
82.514.5406	SK50	ER40	3-30	160	63	M24	ER40	82.960.4000	82.990.4000	152,80

> 82.516 Phantom

NL ER Spantanghouder, ISO 7388-2 (MAS-BT)
FR Mandrin porte-pinces ER, ISO 7388-2 (MAS-BT)
ES Portapinzas ER, ISO 7388-2 (MAS-BT)
DE ER-Spannzangenfutter, ISO 7388-2 (MAS-BT)
EN ER Collet Chuck, ISO 7388-2 (MAS-BT)



ISO	JD (AD)	MAS-BT	AT3	HRc	ISO	DIN	ER	0,005	G6.3 15.000 RPM
7388-2				58 ^{±2}	15488	6499			

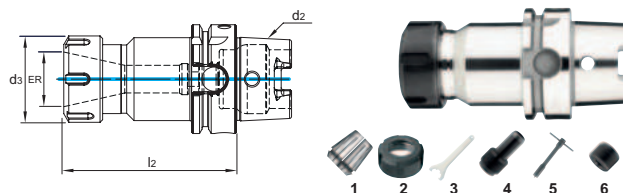
Ref.	d2	Type	Ø	l2	d3	M	1 excl.	2 incl.	3 excl.	€
82.516.4161	BT40	ER16	1-12	70	32	M16	ER16	82.960.1600	82.990.1600	57,30
82.516.4162	BT40	ER16	1-12	100	32	M16	ER16	82.960.1600	82.990.1600	64,65
82.516.4166	BT40	ER16	1-12	160	32	M16	ER16	82.960.1600	82.990.1600	108,70
82.516.4251	BT40	ER25	1-20	70	42	M16	ER25	82.960.2500	82.990.2500	57,30
82.516.4252	BT40	ER25	1-20	100	42	M16	ER25	82.960.2500	82.990.2500	72,00
82.516.4256	BT40	ER25	1-20	160	42	M16	ER25	82.960.2500	82.990.2500	108,70
82.516.4321	BT40	ER32	2-20	70	50	M16	ER32	82.960.3200	82.990.3200	60,20
82.516.4322	BT40	ER32	2-20	100	50	M16	ER32	82.960.3200	82.990.3200	80,15
82.516.4326	BT40	ER32	2-20	160	50	M16	ER32	82.960.3200	82.990.3200	111,65
82.516.4401	BT40	ER40	3-30	70	63	M16	ER40	82.960.4000	82.990.4000	63,20
82.516.4402	BT40	ER40	3-30	100	63	M16	ER40	82.960.4000	82.990.4000	80,80
82.516.4406	BT40	ER40	3-30	160	63	M16	ER40	82.960.4000	82.990.4000	116,10
82.516.5162	BT50	ER16	1-12	100	32	M24	ER16	82.960.1600	82.990.1600	108,70

> 82.516 Phantom

Ref.	d2	Type	Ø	l2	d3	M	1 excl.	2 incl.	3 excl.	€
82.516.5166	BT50	ER16	1-12	160	32	M24	ER16	82.960.1600	82.990.1600	148,35
82.516.5251	BT50	ER25	1-20	80	42	M24	ER25	82.960.2500	82.990.2500	89,65
82.516.5252	BT50	ER25	1-20	100	42	M24	ER25	82.960.2500	82.990.2500	108,70
82.516.5256	BT50	ER25	1-20	160	42	M24	ER25	82.960.2500	82.990.2500	148,35
82.516.5321	BT50	ER32	2-20	80	50	M24	ER32	82.960.3200	82.990.3200	92,55
82.516.5322	BT50	ER32	2-20	100	50	M24	ER32	82.960.3200	82.990.3200	129,30
82.516.5326	BT50	ER32	2-20	160	50	M24	ER32	82.960.3200	82.990.3200	148,35
82.516.5401	BT50	ER40	3-30	80	63	M24	ER40	82.960.4000	82.990.4000	92,55
82.516.5402	BT50	ER40	3-30	100	63	M24	ER40	82.960.4000	82.990.4000	132,20
82.516.5406	BT50	ER40	3-30	160	63	M24	ER40	82.960.4000	82.990.4000	152,80

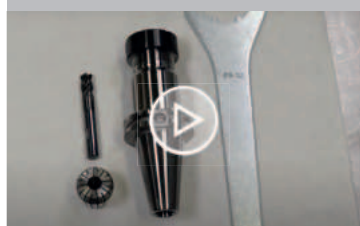
> 82.517 Phantom

NL ER Spantanghouder, ISO 12164 (DIN 69893)
 FR Mandrin porte-pinces ER, ISO 12164 (DIN 69893)
 ES Portapinzas ER, ISO 12164 (DIN 69893)
 DE ER-Spannzangenfutter, ISO 12164 (DIN 69893)
 EN ER Collet Chuck, ISO 12164 (DIN 69893)



ISO 12164	A	HSK-A	AT3	HRC 58 ^{±2}	RFID	ISO 15488	DIN 6499	ER	0,005	G6,3 20.000 RPM
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Ref.	d2	Type	Ø	l2	d3	1 excl.	2 incl.	3 excl.	4 excl.	5 excl.	6 excl.	€
82.517.6252	HSK63A	ER25	1-20	100	42	ER25	82.960.2500	82.990.2500	84.790.1800	84.791.1800	84.789.1800	111,65
82.517.6256	HSK63A	ER25	1-20	160	42	ER25	82.960.2500	82.990.2500	84.790.1800	84.791.1800	84.789.1800	148,35
82.517.6322	HSK63A	ER32	2-20	100	50	ER32	82.960.3200	82.990.3200	84.790.1800	84.791.1800	84.789.1800	116,10
82.517.6326	HSK63A	ER32	2-20	160	50	ER32	82.960.3200	82.990.3200	84.790.1800	84.791.1800	84.789.1800	151,35
82.517.6404	HSK63A	ER40	3-30	120	63	ER40	82.960.4000	82.990.4000	84.790.1800	84.791.1800	84.789.1800	123,40
82.517.6406	HSK63A	ER40	3-30	160	63	ER40	82.960.4000	82.990.4000	84.790.1800	84.791.1800	84.789.1800	158,65



NL Voor betere rondloop, montage frees in ER spantanghouder met tikken
 FR Montage d'une fraise dans un mandrin porte-pinces ER
 ES Sujetar una fresa en un portapinzas ER
 DE Montieren Fräser im ER Spannzanghalter mit klopfen
 EN Mounting end mill into ER collet chuck with ticking

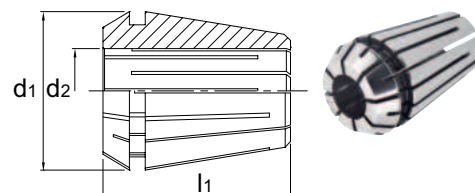
Watch me



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> 82.816 Phantom

NL Spantang ER 16 426E, standaard, 15 µm
 FR Pince ER 16 426E, standard, 15 µm
 ES Pinza ER 16 426E, estándar, 15 µm
 DE Spannzange ER 16 426E, standard, 15 µm
 EN Collet ER 16 426E, standard, 15 µm



ER-16	DIN 6499-B	0,015
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Ref.	Type	d2	Ø	d1	l1	€
82.816.0100	ER16	1	1-0,5	17	27	17,13
82.816.0150	ER16	1.5	1,5-1	17	27	17,13
82.816.0200	ER16	2	2-1,5	17	27	17,13
82.816.0250	ER16	2.5	2-2,5	17	27	17,13
82.816.0300	ER16	3	2-3	17	27	14,46
82.816.0400	ER16	4	3-4	17	27	14,46
82.816.0500	ER16	5	5-4	17	27	14,46

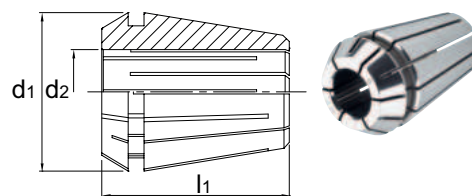
Ref.	Type	d2	Ø	d1	l1	€
82.816.0600	ER16	6	6-5	17	27	14,46
82.816.0700	ER16	7	7-6	17	27	14,46
82.816.0800	ER16	8	8-7	17	27	14,46
82.816.0900	ER16	9	9-8	17	27	14,46
82.816.1000	ER16	10	9-10	17	27	14,46
82.816.1200	ER16	12	12-11	17	27	27,40

**> 82.817 Phantom**

NL Spantang ER 16 426E, Ultra precies, 5 µm
 FR Pince ER 16 426E, Ultra précis, 5 µm
 ES Pinza ER 16 426E, Ultrapreciso, 5 µm
 DE Spannzange ER 16 426E, Ultrapräzise, 5 µm
 EN Collet ER 16 426E, Ultra precise, 5 µm

DIN
6499-B

0,005



Ref.	Type	d2	Ø	d1	l1	€
82.817.0100	ER16	1	1-0,5	17	27	27,40
82.817.0150	ER16	1.5	1,5-1	17	27	27,40
82.817.0200	ER16	2	2-1,5	17	27	27,40
82.817.0300	ER16	3	3-2,5	17	27	25,45
82.817.0400	ER16	4	4-3,5	17	27	25,45
82.817.0500	ER16	5	5-4,5	17	27	25,45

Ref.	Type	d2	Ø	d1	l1	€
82.817.0600	ER16	6	6-5,5	17	27	25,45
82.817.0700	ER16	7	7-6,5	17	27	25,45
82.817.0800	ER16	8	8-7,5	17	27	25,45
82.817.0900	ER16	9	9-8,5	17	27	25,45
82.817.1000	ER16	10	10-9,5	17	27	25,45



NL Keuzehulp spangtangen
 FR Pinces ER Phantom selon DIN 6499 B / ISO 15488 B
 ES Ayuda para la selección de pinzas
 DE Auswahlhilfe Spannzange
 EN Selection guide for collets

Read me



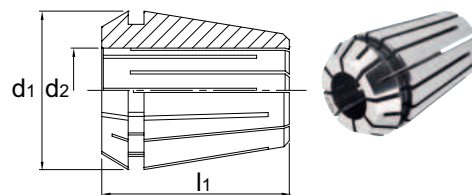
www.phantom.eu

> 82.820 Phantom

NL Spantang ER 20 428E, standaard, 15 µm
 FR Pince ER 20 428E, standard, 15 µm
 ES Pinza ER 20 428E, estándar, 15 µm
 DE Spannzange ER 20 428E, standard, 15 µm
 EN Collet ER 20 428E, standard, 15 µm

DIN
6499-B

0,015



Ref.	Type	d2	Ø	d1	l1	€
82.820.0100	ER20	1	1-0,5	21	31	17,13
82.820.0150	ER20	1.5	1,5-1	21	31	17,13
82.820.0200	ER20	2	2-1,5	21	31	17,13
82.820.0250	ER20	2.5	2-2,5	21	31	17,13
82.820.0300	ER20	3	2-3	21	31	14,66
82.820.0400	ER20	4	3-4	21	31	14,66
82.820.0500	ER20	5	5-4	21	31	14,66
82.820.0600	ER20	6	6-5	21	31	14,66

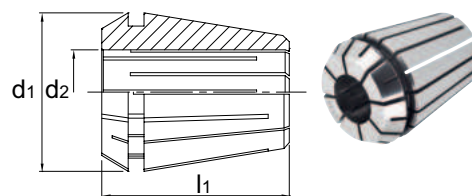
Ref.	Type	d2	Ø	d1	l1	€
82.820.0700	ER20	7	7-6	21	31	14,66
82.820.0800	ER20	8	8-7	21	31	14,66
82.820.0900	ER20	9	9-8	21	31	14,66
82.820.1000	ER20	10	9-10	21	31	14,66
82.820.1100	ER20	11	11-10	21	31	14,66
82.820.1200	ER20	12	12-11	21	31	14,66
82.820.1300	ER20	13	13-12	21	31	14,66

> 82.825 Phantom

NL Spantang ER 25 430E, standaard, 15 µm
 FR Pince ER 25 430E, standard, 15 µm
 ES Pinza ER 25 430E, estándar, 15 µm
 DE Spannzange ER 25 430E, standard, 15 µm
 EN Collet ER 25 430E, standard, 15 µm

DIN
6499-B

0,015

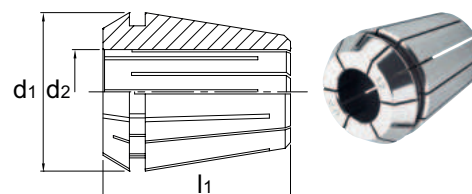


Ref.	Type	d2	Ø	d1	l1	€
82.825.0100	ER25	1	1-0,5	26	35	17,13
82.825.0150	ER25	1.5	1,5-1	26	35	17,13
82.825.0200	ER25	2	2-1,5	26	35	17,13
82.825.0250	ER25	2.5	2-2,5	26	35	17,13
82.825.0300	ER25	3	2-3	26	35	14,66
82.825.0400	ER25	4	3-4	26	35	14,66
82.825.0500	ER25	5	5-4	26	35	14,66
82.825.0600	ER25	6	6-5	26	35	14,66
82.825.0700	ER25	7	7-6	26	35	14,66
82.825.0800	ER25	8	8-7	26	35	14,66
82.825.0900	ER25	9	9-8	26	35	14,66

Ref.	Type	d2	Ø	d1	l1	€
82.825.1000	ER25	10	9-10	26	35	14,66
82.825.1100	ER25	11	11-10	26	35	14,66
82.825.1200	ER25	12	12-11	26	35	14,66
82.825.1300	ER25	13	13-12	26	35	14,66
82.825.1400	ER25	14	14-13	26	35	14,66
82.825.1500	ER25	15	15-14	26	35	14,66
82.825.1600	ER25	16	16-15	26	35	14,66
82.825.1700	ER25	17	17-16	26	35	30,40
82.825.1800	ER25	18	18-17	26	35	30,40
82.825.1900	ER25	19	19-18	26	35	30,40
82.825.2000	ER25	20	20-19	26	35	30,40

> 82.826 Phantom

NL Spantang ER 25 430E, Ultra precies, 5 µm
 FR Pince ER 25 430E, Ultra précis, 5 µm
 ES Pinza ER 25 430E, Ultrapreciso, 5 µm
 DE Spannzange ER 25 430E, Ultrapräzise, 5 µm
 EN Collet ER 25 430E, Ultra precise, 5 µm

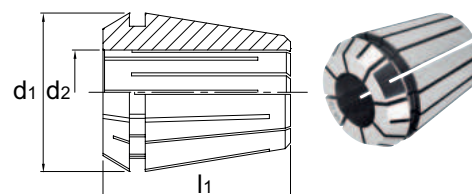


Ref.	Type	d2	Ø	d1	l1	€
82.826.0100	ER25	1	1-0,5	26	35	27,40
82.826.0150	ER25	1,5	1,5-1	26	35	27,40
82.826.0200	ER25	2	2-1,5	26	35	27,40
82.826.0300	ER25	3	3-2,5	26	35	25,45
82.826.0400	ER25	4	4-3,5	26	35	25,45
82.826.0500	ER25	5	5-4,5	26	35	25,45
82.826.0600	ER25	6	6-5,5	26	35	25,45
82.826.0700	ER25	7	7-6,5	26	35	25,45
82.826.0800	ER25	8	8-7,5	26	35	25,45

Ref.	Type	d2	Ø	d1	l1	€
82.826.0900	ER25	9	9-8,5	26	35	25,45
82.826.1000	ER25	10	10-9,5	26	35	25,45
82.826.1100	ER25	11	11-10,5	26	35	25,45
82.826.1200	ER25	12	12-11,5	26	35	25,45
82.826.1300	ER25	13	13-12,5	26	35	25,45
82.826.1400	ER25	14	14-13,5	26	35	25,45
82.826.1500	ER25	15	15-14,5	26	35	25,45
82.826.1600	ER25	16	16-15,5	26	35	25,45

> 82.832 Phantom

NL Spantang ER 32 470E, standaard, 15 µm
 FR Pince ER 32 470E, standard, 15 µm
 ES Pinza ER 32 470E, estándar, 15 µm
 DE Spannzange ER 32 470E, standard, 15 µm
 EN Collet ER 32 470E, standard, 15 µm

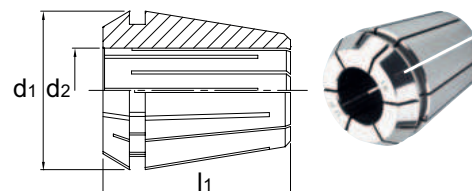


Ref.	Type	d2	Ø	d1	l1	€
82.832.0200	ER32	2	2-1,5	33	40	17,13
82.832.0300	ER32	3	2-3	33	40	14,66
82.832.0400	ER32	4	3-4	33	40	14,66
82.832.0500	ER32	5	5-4	33	40	14,66
82.832.0600	ER32	6	6-5	33	40	14,66
82.832.0700	ER32	7	7-6	33	40	14,66
82.832.0800	ER32	8	8-7	33	40	14,66
82.832.0900	ER32	9	9-8	33	40	14,66
82.832.1000	ER32	10	9-10	33	40	14,66
82.832.1100	ER32	11	11-10	33	40	14,66

Ref.	Type	d2	Ø	d1	l1	€
82.832.1200	ER32	12	12-11	33	40	14,66
82.832.1300	ER32	13	13-12	33	40	14,66
82.832.1400	ER32	14	14-13	33	40	14,66
82.832.1500	ER32	15	15-14	33	40	14,66
82.832.1600	ER32	16	16-15	33	40	14,66
82.832.1700	ER32	17	17-16	33	40	14,66
82.832.1800	ER32	18	18-17	33	40	14,66
82.832.1900	ER32	19	19-18	33	40	14,66
82.832.2000	ER32	20	20-19	33	40	14,66

> 82.833 Phantom

NL Spantang ER 32 470E, Ultra precies, 5 µm
 FR Pince ER 32 470E, Ultra précis, 5 µm
 ES Pinza ER 32 470E, Ultrapreciso, 5 µm
 DE Spannzange ER 32 470E, Ultrapräzise, 5 µm
 EN Collet ER 32 470E, Ultra precise, 5 µm



Ref.	Type	d2	Ø	d1	l1	€
82.833.0200	ER32	2	2-1,5	33	40	27,40
82.833.0300	ER32	3	3-2,5	33	40	24,49
82.833.0400	ER32	4	4-3,5	33	40	24,49
82.833.0500	ER32	5	5-4,5	33	40	24,49
82.833.0600	ER32	6	6-5,5	33	40	24,49
82.833.0700	ER32	7	7-6,5	33	40	24,49
82.833.0800	ER32	8	8-7,5	33	40	24,49
82.833.0900	ER32	9	9-8,5	33	40	24,49
82.833.1000	ER32	10	10-9,5	33	40	24,49
82.833.1100	ER32	11	11-10,5	33	40	24,49

Ref.	Type	d2	Ø	d1	l1	€
82.833.1200	ER32	12	12-11,5	33	40	24,49
82.833.1300	ER32	13	13-12,5	33	40	24,49
82.833.1400	ER32	14	14-13,5	33	40	24,49
82.833.1500	ER32	15	15-14,5	33	40	24,49
82.833.1600	ER32	16	16-15,5	33	40	24,49
82.833.1700	ER32	17	17-16,5	33	40	24,49
82.833.1800	ER32	18	18-17,5	33	40	24,49
82.833.1900	ER32	19	19-18,5	33	40	24,49
82.833.2000	ER32	20	20-19,5	33	40	24,49

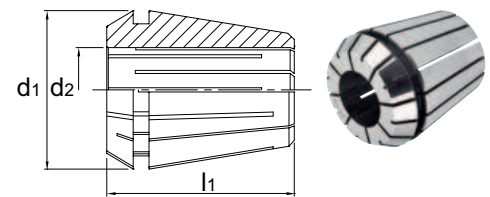
**> 82.840 Phantom**

NL Spantang ER 40 472E, standaard, 15 µm
 FR Pince ER 40 472E, standard, 15 µm
 ES Pinza ER 40 472E, estándar, 15 µm
 DE Spannzange ER 40 472E, standard, 15 µm
 EN Collet ER 40 472E, standard, 15 µm

DIN
6499-B

0,015

Ref.	Type	d2	Ø	d1	l1	€
82.840.0300	ER40	3	2-3	41	46	24,74
82.840.0400	ER40	4	3-4	41	46	24,74
82.840.0500	ER40	5	5-4	41	46	20,94
82.840.0600	ER40	6	6-5	41	46	20,94
82.840.0700	ER40	7	7-6	41	46	20,94
82.840.0800	ER40	8	8-7	41	46	20,94
82.840.0900	ER40	9	9-8	41	46	20,94
82.840.1000	ER40	10	9-10	41	46	20,94
82.840.1100	ER40	11	11-10	41	46	20,94
82.840.1200	ER40	12	12-11	41	46	20,94
82.840.1300	ER40	13	13-12	41	46	20,94
82.840.1400	ER40	14	14-13	41	46	20,94
82.840.1500	ER40	15	15-14	41	46	20,94
82.840.1600	ER40	16	16-15	41	46	20,94

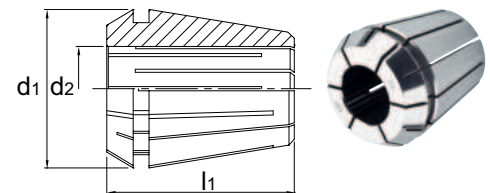
**> 82.841 Phantom**

NL Spantang ER 40 472E, Ultra precies, 5 µm
 FR Pince ER 40 472E, Ultra précis, 5 µm
 ES Pinza ER 40 472E, Ultrapreciso, 5 µm
 DE Spannzange ER 40 472E, Ultrapräzise, 5 µm
 EN Collet ER 40 472E, Ultra precise, 5 µm

DIN
6499-B

0,005

Ref.	Type	d2	Ø	d1	l1	€
82.841.0300	ER40	3	3-2,5	41	46	34,30
82.841.0400	ER40	4	4-3,5	41	46	34,30
82.841.0500	ER40	5	5-4,5	41	46	29,35
82.841.0600	ER40	6	6-5,5	41	46	29,35
82.841.0700	ER40	7	7-6,5	41	46	29,35
82.841.0800	ER40	8	8-7,5	41	46	29,35
82.841.0900	ER40	9	9-8,5	41	46	29,35
82.841.1000	ER40	10	10-9,5	41	46	29,35
82.841.1100	ER40	11	11-10,5	41	46	29,35
82.841.1200	ER40	12	12-11,5	41	46	29,35
82.841.1300	ER40	13	13-12,5	41	46	29,35
82.841.1400	ER40	14	14-13,5	41	46	29,35
82.841.1500	ER40	15	15-14,5	41	46	29,35
82.841.1600	ER40	16	16-15,5	41	46	29,35

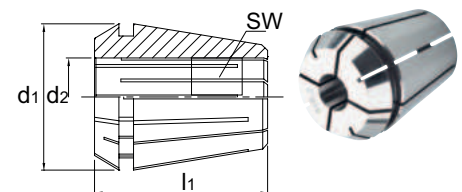
**> 82.880 Phantom**

NL Spantang ER 16G 426G, voor tappen, 15 µm
 FR Pince ER 16G 426G, pour tarauds, 15 µm
 ES Pinza ER 16G 426G, para machos, 15 µm
 DE Spannzange ER 16G 426G, für Maschinengewindebohrer, 15 µm
 EN Collet ER 16G 426G, for taps, 15 µm

DIN
6499

0,015

Ref.	Type	d2	sw	d1	l1	€
82.880.0350	ER16G	3.5	2.7	17	27	31,95
82.880.0400	ER16G	4	3	17	27	31,95
82.880.0450	ER16G	4.5	3.4	17	27	31,95
82.880.0500	ER16G	5	4	17	27	31,95
82.880.0600	ER16G	6	4.9	17	27	31,95



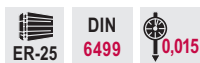
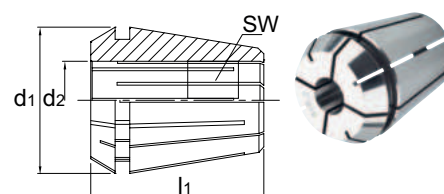
Ref.	Type	d2	Ø	d1	l1	€
82.840.1700	ER40	17	17-16	41	46	20,94
82.840.1800	ER40	18	18-17	41	46	20,94
82.840.1900	ER40	19	19-18	41	46	20,94
82.840.2000	ER40	20	20-19	41	46	20,94
82.840.2100	ER40	21	21-20	41	46	20,94
82.840.2200	ER40	22	22-21	41	46	20,94
82.840.2300	ER40	23	23-22	41	46	20,94
82.840.2400	ER40	24	24-23	41	46	20,94
82.840.2500	ER40	25	25-24	41	46	20,94
82.840.2600	ER40	26	26-25	41	46	20,94
82.840.2700	ER40	27	27-26	41	46	35,25
82.840.2800	ER40	28	28-27	41	46	35,25
82.840.2900	ER40	29	29-28	41	46	35,25
82.840.3000	ER40	30	30-29	41	46	35,25

Ref.	Type	d2	Ø	d1	l1	€
82.841.1700	ER40	17	17-16,5	41	46	29,35
82.841.1800	ER40	18	18-17,5	41	46	29,35
82.841.1900	ER40	19	19-18,5	41	46	29,35
82.841.2000	ER40	20	20-19,5	41	46	29,35
82.841.2100	ER40	21	21-20,5	41	46	29,35
82.841.2200	ER40	22	22-21,5	41	46	29,35
82.841.2300	ER40	23	23-22,5	41	46	29,35
82.841.2400	ER40	24	24-23,5	41	46	29,35
82.841.2500	ER40	25	25-24,5	41	46	29,35
82.841.2600	ER40	26	26-25,5	41	46	29,35
82.841.2700	ER40	27	27-26,5	41	46	29,35
82.841.2800	ER40	28	28-27,5	41	46	29,35
82.841.2900	ER40	29	29-28,5	41	46	29,35
82.841.3000	ER40	30	30-29,5	41	46	29,35

Ref.	Type	d2	sw	d1	l1	€
82.880.0630	ER16G	6.3	5	17	27	31,95
82.880.0700	ER16G	7	5.5	17	27	31,95
82.880.0800	ER16G	8	6.2	17	27	31,95
82.880.0900	ER16G	9	7.1	17	27	31,95
82.880.1000	ER16G	10	8	17	27	31,95

> 82.885 Phantom

NL Spantang ER 25G 430G, voor tappen, 15 µm
 FR Pince ER 25G 430G, pour tarauds, 15 µm
 ES Pinza ER 25G 430G, para machos, 15 µm
 DE Spannzange ER 25G 430G, für Maschinengewindebohrer, 15 µm
 EN Collet ER 25G 430G, for taps, 15 µm

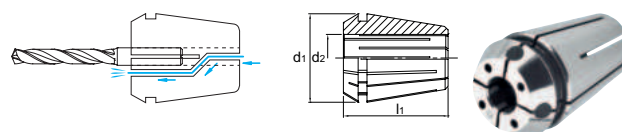


Ref.	Type	d2	sw	d1	l1	€
82.885.0350	ER25G	3.5	2.7	26	35	39,20
82.885.0400	ER25G	4	3	26	35	39,20
82.885.0450	ER25G	4.5	3.4	26	35	32,80
82.885.0500	ER25G	5	4	26	35	32,80
82.885.0550	ER25G	5.5	4.3	26	35	39,20
82.885.0600	ER25G	6	4.9	26	35	32,80
82.885.0630	ER25G	6.3	5	26	35	32,80

Ref.	Type	d2	sw	d1	l1	€
82.885.0700	ER25G	7	5.5	26	35	32,80
82.885.0800	ER25G	8	6.2	26	35	32,80
82.885.0900	ER25G	9	7	26	35	32,80
82.885.1000	ER25G	10	8	26	35	32,80
82.885.1100	ER25G	11	9	26	35	39,20
82.885.1120	ER25G	11.2	9	26	35	32,80
82.885.1200	ER25G	12	9	26	35	39,20

> 82.918 Phantom

NL Spantang ER 16 425E, Coolant Jet, 8 µm
 FR Pince ER 16 425E, Coolant Jet, 8 µm
 ES Pinza ER 16 425E, Coolant Jet, 8 µm
 DE Spannzange ER 16 425E, Coolant Jet, 8 µm
 EN Collet ER 16 425E, Coolant Jet, 8 µm

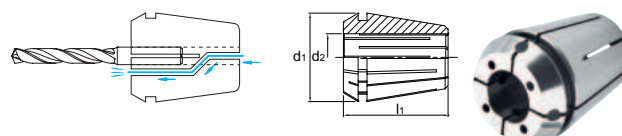


Ref.	Type	d2	Ø	d1	l1	€
82.918.0300	ER16	3	3h10	17	27	51,70
82.918.0400	ER16	4	4h10	17	27	51,70
82.918.0500	ER16	5	5h10	17	27	51,70

Ref.	Type	d2	Ø	d1	l1	€
82.918.0600	ER16	6	6h10	17	27	51,70
82.918.0700	ER16	7	7h10	17	27	51,70

> 82.927 Phantom

NL Spantang ER 25 429E, Coolant Jet, 8 µm
 FR Pince ER 25 429E, Coolant Jet, 8 µm
 ES Pinza ER 25 429E, Coolant Jet, 8 µm
 DE Spannzange ER 25 429E, Coolant Jet, 8 µm
 EN Collet ER 25 429E, Coolant Jet, 8 µm

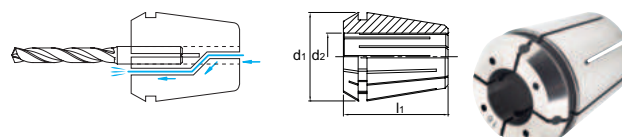


Ref.	Type	d2	Ø	d1	l1	€
82.927.0300	ER25	3	3h10	26	35	54,05
82.927.0400	ER25	4	4h10	26	35	54,05
82.927.0500	ER25	5	5h10	26	35	54,05
82.927.0600	ER25	6	6h10	26	35	54,05
82.927.0700	ER25	7	7h10	26	35	54,05
82.927.0800	ER25	8	8h10	26	35	54,05

Ref.	Type	d2	Ø	d1	l1	€
82.927.0900	ER25	9	9h10	26	35	54,05
82.927.1000	ER25	10	10h10	26	35	54,05
82.927.1100	ER25	11	11h10	26	35	54,05
82.927.1200	ER25	12	12h10	26	35	54,05
82.927.1300	ER25	13	13h10	26	35	54,05
82.927.1400	ER25	14	14h10	26	35	54,05

> 82.934 Phantom

NL Spantang ER 32 469E, Coolant Jet, 8 µm
 FR Pince ER 32 469E, Coolant Jet, 8 µm
 ES Pinza ER 32 469E, Coolant Jet, 8 µm
 DE Spannzange ER 32 469E, Coolant Jet, 8 µm
 EN Collet ER 32 469E, Coolant Jet, 8 µm



Ref.	Type	d2	Ø	d1	l1	€
82.934.0300	ER32	3	3h10	33	40	55,65
82.934.0400	ER32	4	4h10	33	40	55,65
82.934.0500	ER32	5	5h10	33	40	55,65
82.934.0600	ER32	6	6h10	33	40	55,65
82.934.0700	ER32	7	7h10	33	40	55,65
82.934.0800	ER32	8	8h10	33	40	55,65
82.934.0900	ER32	9	9h10	33	40	55,65
82.934.1000	ER32	10	10h10	33	40	55,65
82.934.1100	ER32	11	11h10	33	40	55,65

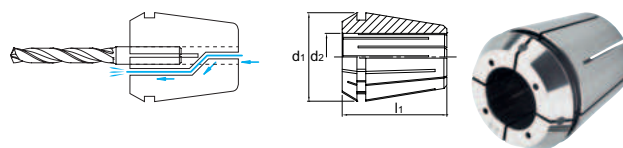
Ref.	Type	d2	Ø	d1	l1	€
82.934.1200	ER32	12	12h10	33	40	55,65
82.934.1300	ER32	13	13h10	33	40	55,65
82.934.1400	ER32	14	14h10	33	40	55,65
82.934.1500	ER32	15	15h10	33	40	55,65
82.934.1600	ER32	16	16h10	33	40	55,65
82.934.1700	ER32	17	17h10	33	40	55,65
82.934.1800	ER32	18	18h10	33	40	55,65
82.934.1900	ER32	19	19h10	33	40	55,65
82.934.2000	ER32	20	20h10	33	40	55,65

**> 82.942 Phantom**

NL Spantang ER 40 471E, Coolant Jet, 8 µm
 FR Pince ER 40 471E, Coolant Jet, 8 µm
 ES Pinza ER 40 471E, Coolant Jet, 8 µm
 DE Spannzange ER 40 471E, Coolant Jet, 8 µm
 EN Collet ER 40 471E, Coolant Jet, 8 µm

DIN
6499

0,008

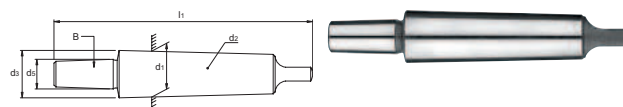
40
BAR

Ref.	Type	d2	Ø	d1	l1	€
82.942.0400	ER40	4	4h10	41	46	66,65
82.942.0500	ER40	5	5h10	41	46	66,65
82.942.0600	ER40	6	6h10	41	46	66,65
82.942.0700	ER40	7	7h10	41	46	66,65
82.942.0800	ER40	8	8h10	41	46	66,65
82.942.0900	ER40	9	9h10	41	46	66,65
82.942.1000	ER40	10	10h10	41	46	66,65
82.942.1100	ER40	11	11h10	41	46	66,65
82.942.1200	ER40	12	12h10	41	46	66,65
82.942.1300	ER40	13	13h10	41	46	66,65
82.942.1400	ER40	14	14h10	41	46	66,65

Ref.	Type	d2	Ø	d1	l1	€
82.942.1500	ER40	15	15h10	41	46	66,65
82.942.1600	ER40	16	16h10	41	46	66,65
82.942.1700	ER40	17	17h10	41	46	66,65
82.942.1800	ER40	18	18h10	41	46	66,65
82.942.1900	ER40	19	19h10	41	46	66,65
82.942.2000	ER40	20	20h10	41	46	66,65
82.942.2100	ER40	21	21h10	41	46	66,65
82.942.2200	ER40	22	22h10	41	46	66,65
82.942.2300	ER40	23	23h10	41	46	66,65
82.942.2400	ER40	24	24h10	41	46	66,65
82.942.2500	ER40	25	25h10	41	46	66,65

> 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

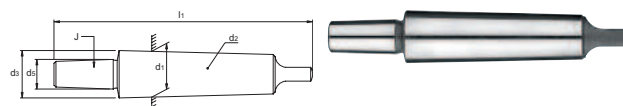
DIN
228-BDIN
238ECO
PRO

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

> 84.171 INTERNATIONAL TOOLS

NL ECO PRO Boorhouderstift MK- en J-opname
 FR Arbre de mandrin de perçage ECO PRO CM et cône J
 ES Espiga para portabrocas ECO PRO CM y cono J
 DE ECO PRO Bohrfutterkegel MK- und J-Aufnahme
 EN ECO PRO Drill Chuck Arbor MT and J taper

DIN
228-BECO
PRO

Ref.	d2	J	l1	d1	d5	d3	€
84.171.0101	MK 1	J1	83.8	12.065	9.754	12.22	6,59
84.171.0102	MK 1	J2	90.5	12.065	14.199	12.22	6,59
84.171.0103	MK 1	J3	100.5	12.065	20.599	12.22	6,59
84.171.0201	MK 2	J1	102.5	17.78	9.754	18	7,36
84.171.0202	MK 2	J2	106	17.78	14.199	18	7,36
84.171.0203	MK 2	J3	112.5	17.78	20.599	18	7,36
84.171.0206	MK 2	J6	107	17.78	17.17	18	7,36

Ref.	d2	J	l1	d1	d5	d3	€
84.171.0233	MK 2	J33	107	17.78	15.85	18	7,36
84.171.0302	MK 3	J2	127	23.825	14.199	24.1	9,56
84.171.0303	MK 3	J3	131.5	23.825	20.599	24.1	9,56
84.171.0306	MK 3	J6	129	23.825	17.17	24.1	9,56
84.171.0333	MK 3	J33	126	23.825	15.85	24.1	9,56
84.171.0403	MK 4	J3	160.5	31.267	20.599	31.6	13,88
84.171.0406	MK 4	J6	155	31.267	17.17	31.6	13,88

> 84.172 INTERNATIONAL TOOLS

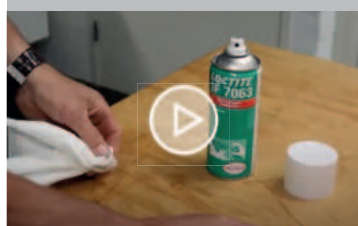
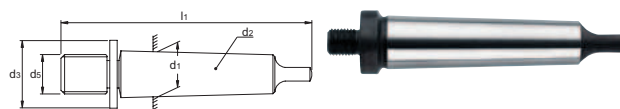
NL ECO PRO Boorhouderstift MK en UNF-UN-M-draadopname
 FR Arbre de mandrin de perçage ECO PRO CM et filetage UNF-UN-M
 ES Espiga para portabrocas ECO PRO CM y sujeción con rosca UNF-UN-M
 DE ECO PRO Bohrfutterkegel MK und UNF-UN-M-Gewindeaufnahme
 EN ECO PRO Drill Chuck Arbor MT and UNF-UN-M-thread

DIN
228-B

ECO
PRO

Ref.	d2	d5	l1	d1	d3	€
84.172.0212	MK 2	1/2"-20 UNF	104	17.78	18	6,94
84.172.0305	MK 3	5/8"-16 UN	122	23.825	24.1	17,87

Ref.	d2	d5	l1	d1	d3	€
84.172.0320	MK 3	M20	125	23.825	24.1	17,87
84.172.0420	MK 4	M20	150	31.267	31.6	17,87



NL Montage boorhouderstift in boorhouder
 FR Monter un arbre de mandrin de perçage
 ES Sujetar una espiga en un portabrocas
 DE Montieren Bohrfutteraufnahme im Bohrfutter
 EN Mounting arbor into drill chuck



Watch me

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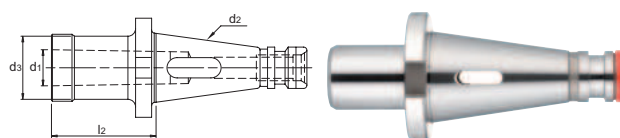
> 84.203 Phantom

NL Verloophuls voor MK opname, DIN 2080
 FR Adaptateur pour queues cône morse, DIN 2080
 ES Reductor a Morse, DIN 2080
 DE Reduzierhülsen für MK Aufnahme, DIN 2080
 EN Adapter for Morse Taper shanks, DIN 2080

DIN 2080 AD SK AT3 HRC 58^{±2} DIN 6383 DIN 228-B 0,005

Ref.	d2	d1	l2	d3	€
84.203.3001	SK30	MK 1	50	25	53,90
84.203.3002	SK30	MK 2	50	32	53,90
84.203.3003	SK30	MK 3	75	40	53,90
84.203.4001	SK40	MK 1	50	25	53,90
84.203.4002	SK40	MK 2	50	32	53,90
84.203.4003	SK40	MK 3	65	40	53,90

Ref.	d2	d1	l2	d3	€
84.203.4004	SK40	MK 4	95	48	58,85
84.203.5001	SK50	MK 1	45	25	92,15
84.203.5002	SK50	MK 2	60	32	92,15
84.203.5003	SK50	MK 3	65	40	92,15
84.203.5004	SK50	MK 4	70	48	96,10
84.203.5005	SK50	MK 5	105	63	99,55



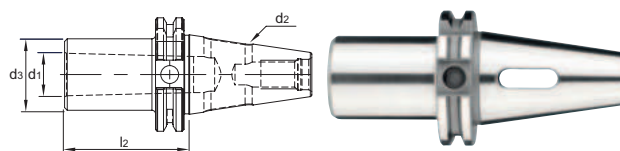
> 84.204 Phantom

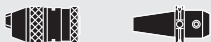
NL Verloophuls voor MK opname, ISO 7388-1 (DIN 69871)
 FR Adaptateur pour queues cône morse, ISO 7388-1 (DIN 69871)
 ES Reductor a Morse, ISO 7388-1 (DIN 69871)
 DE Reduzierhülsen für MK Aufnahme, ISO 7388-1 (DIN 69871)
 EN Adapter for Morse Taper shanks, ISO 7388-1 (DIN 69871)

ISO 7388-1 DIN 69871 AD SK AT3 HRC 58^{±2} RFID DIN 6383 0,005 G6,3 15.000 RPM

Ref.	d2	d1	l2	d3	€
84.204.4001	SK40	MK 1	50	25	44,05
84.204.4002	SK40	MK 2	50	32	44,05
84.204.4003	SK40	MK 3	70	40	44,05
84.204.4004	SK40	MK 4	95	48	48,50
84.204.5001	SK50	MK 1	45	25	61,70

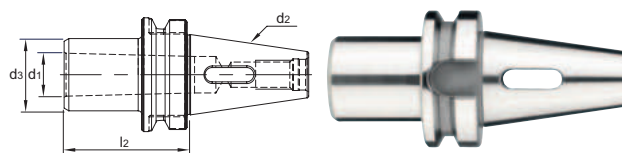
Ref.	d2	d1	l2	d3	€
84.204.5002	SK50	MK 2	60	32	61,70
84.204.5003	SK50	MK 3	65	40	61,70
84.204.5004	SK50	MK 4	95	48	61,70
84.204.5005	SK50	MK 5	105	63	67,60





> 84.206 Phantom

NL Verloophuls voor MK opname, ISO 7388-2 (MAS-BT)
 FR Adaptateur pour queues cône morse, ISO 7388-2 (MAS-BT)
 ES Reductor a Morse, ISO 7388-2 (MAS-BT)
 DE Reduzierhülsen für MK Aufnahme, ISO 7388-2 (MAS-BT)
 EN Adapter for Morse Taper shanks, ISO 7388-2 (MAS-BT)



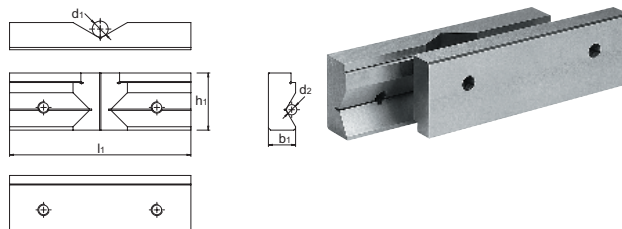
ISO 7388-2	JD (AD)	MAS-BT	AT3	HRC 58 ^{±2}	DIN 6383	0,005	G6.3 15.000 RPM
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Ref.	d2	d1	l2	d3	€
84.206.4001	BT40	MK 1	50	25	44,05
84.206.4002	BT40	MK 2	50	32	44,05
84.206.4003	BT40	MK 3	70	40	44,05
84.206.4004	BT40	MK 4	95	48	48,50
84.206.5001	BT50	MK 1	45	25	67,60

Ref.	d2	d1	l2	d3	€
84.206.5002	BT50	MK 2	60	32	67,60
84.206.5003	BT50	MK 3	65	40	67,60
84.206.5004	BT50	MK 4	95	48	67,60
84.206.5005	BT50	MK 5	105	63	76,40

> 88.318 BISON

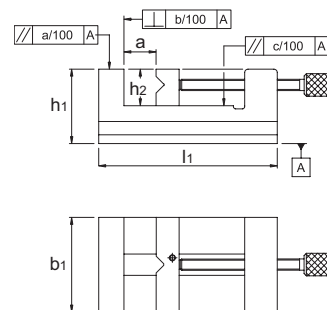
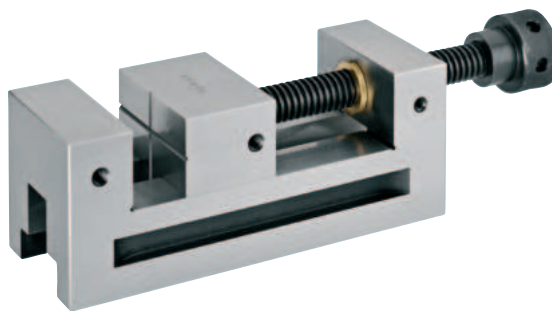
NL Set Prismabekken voor machinespanklem artikelnr. 88.200
 FR Jeu Mors pour étau de fraisage n° article 88.200
 ES Juego de Garras con ranurado para mordaza mecánica n° artículo 88.200
 DE Satz Prismabacken für Maschinenschraubstöcke Artikel-Nr. 88.200
 EN Set Clamping Inserts for Machine Vise article nr. 88.200



Ref.	l1	h1	b1	d1	d2	Bison	€
88.318.0160	160	50.4	24	10-35	18-80	6517, 6518	566,00
88.318.0200	200	63.4	30	14-44	22-100	6517, 6518	622,00

> 88.340 Phantom

NL Precisie Slijpklem
 FR Etiau de précision
 ES Mordaza de precisión
 DE Präzisions-Schleifschraubstöcke
 EN Precision Vise

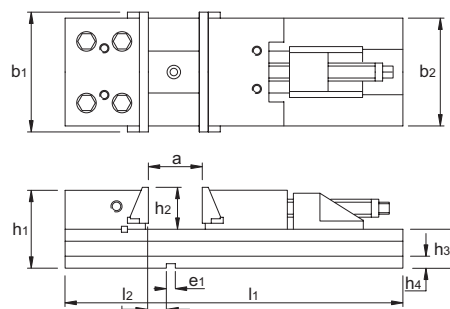
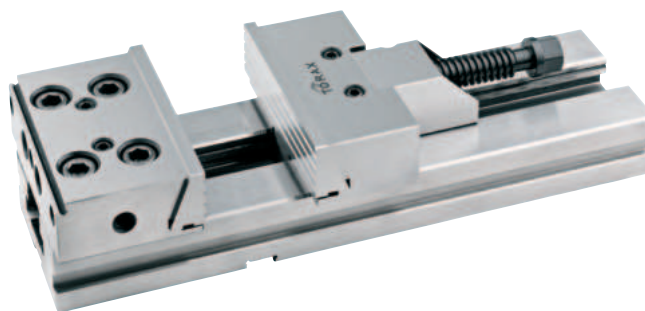


Ref.	b1	l1	h1	h2	a max	Tol. a	Tol. b	Tol. c	€
88.340.0050	50	155	50	25	65	0.005	0.005	0.005	244,75
88.340.0063	63	190	65	32	85	0.005	0.005	0.005	280,00
88.340.0080	80	220	84	40	100	0.005	0.005	0.005	348,00
88.340.0100	100	260	95	45	125	0.007	0.005	0.005	542,00

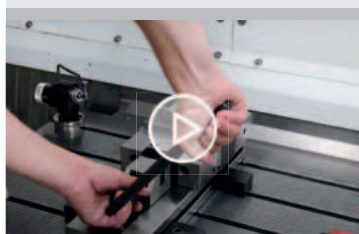
> 88.440

TORAX

NL Precisie Machinespanklem
 FR Étau de fraisage de précision
 ES Mordaza mecánica de precisión
 DE Präzisionsschraubstöcke
 EN Precision Compact Vise

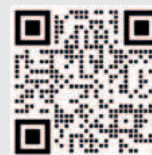


Ref.	b1	b2	l1	l2	h1	h2	h3	h4	a max	e1 N6	Max. daN	€
88.440.1027	100	75	270	25.61	65	30	35	15	100	16	3000	846,00
88.440.1234	125	95	345	25.61	80	40	40	15	150	16	3000	986,00
88.440.1542	150	125	420	25.61	100	50	50	20	200	16	5000	1.050,00
88.440.1552	150	125	520	25.61	100	50	50	20	300	16	5000	1.278,00
88.440.1745	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

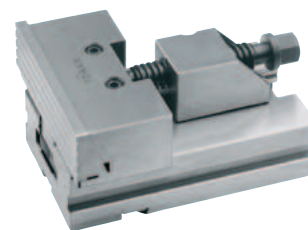
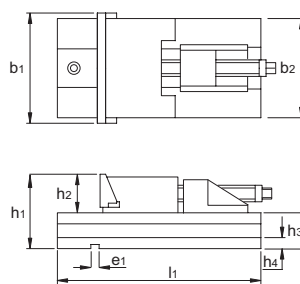


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> 88.470

TORAX

NL Beweegbare Precisie Machinespanklem
 FR Étau machine mobile de précision
 ES Mordaza mecánica de alta precisión rotativa
 DE Bewegbare Präzisions Maschinenklemme
 EN Movable Precision Machine Vise



Ref.	b1	b2	h1	h2	h3	h4	l1	e1 N6	€
88.470.1250	125	95	80	40	40	15	160	16	388,00
88.470.1500	150	125	100	50	50	20	230	16	526,00

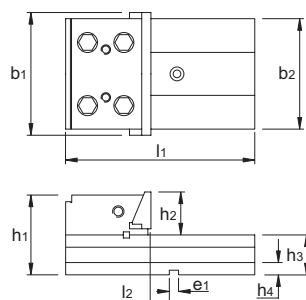
Ref.	b1	b2	h1	h2	h3	h4	l1	e1 N6	€
88.470.1750	175	145	118	60	58	20	240	16	721,00
88.470.2000	200	170	135	65	70	26	300	16	1.010,00



> 88.472

TORAX

NL Vaste Precisie Machinespanklem
FR Étau machine fixe de précision
ES Mordaza Mecánica de precisión fija
DE Präzisions Maschinenschraubstöcke
EN Fixed Precision Machine Vise



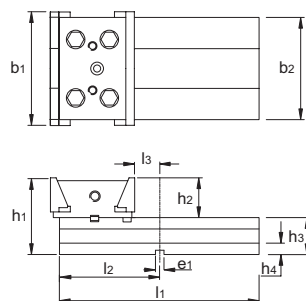
Ref.	b1	b2	h1	h2	h3	h4	l1	l2	e1	N6	€
88.472.1250	125	95	80	40	40	15	160	25.61	16		331,00
88.472.1500	150	125	100	50	50	20	230	25.61	16		456,00

Ref.	b1	b2	h1	h2	h3	h4	l1	l2	e1	N6	€
88.472.1750	175	145	118	60	58	20	240	25.61	16		619,00
88.472.2000	200	170	135	65	70	26	300	25.61	16		868,00

> 88.474

TORAX

NL Vaste Dubbele Precisie Machinespanklem
FR Étau machine fixe double de précision
ES Mordaza Mecánica de doble precisión fija
DE Präzisions Maschinenschraubstock mit Doppelspannung
EN Fixed Double Precision Machine Vise



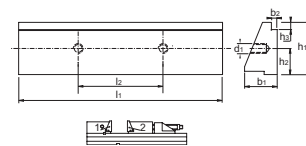
Ref.	b1	b2	h1	h2	h3	h4	l1	l2	l3	e1	N6	€
88.474.1250	125	95	80	40	40	15	160	71	33.6	16		409,00
88.474.1500	150	125	100	50	50	20	230	122.5	33.6	16		543,00

Ref.	b1	b2	h1	h2	h3	h4	l1	l2	l3	e1	N6	€
88.474.1750	175	145	118	60	58	20	240	79	33.6	16		721,00
88.474.2000	200	170	135	65	70	26	300	155	33.6	16		997,00

> 88.475

TORAX

NL Getrapte Bek voor precisie machinespanklem 88.440, 88.470 en 88.472
FR Mors avec méplat pour étau de haute précision 88.440, 88.470 et 88.472
ES Garra escalonada para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
DE Trat Back für Präzisionsschraubstöcke 88.440, 88.470 und 88.472
EN Step jaw plate for Precision Vise 88.440, 88.470 and 88.472



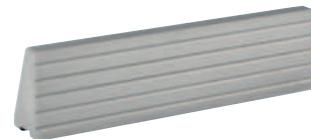
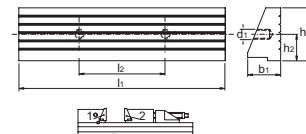
Ref.	l1	h1	b1	l2	h2	d1	b2	h3	Type	€
88.475.1002	100	24.5	14	20	10	M6	3	5	1	56,50
88.475.1004	100	24.5	14	62	10	M6	3	5	2	57,90
88.475.1202	125	32	19	32	15	M8	3	5	1	65,45
88.475.1204	125	32	19	80	15	M8	3	5	2	65,45
88.475.1502	150	40	24	50	19	M8	5	5	1	78,85

Ref.	l1	h1	b1	l2	h2	d1	b2	h3	Type	€
88.475.1504	150	40	24	90	19	M8	5	5	2	78,85
88.475.1702	175	43	24	50	20.5	M8	5	5	1	98,80
88.475.1704	175	43	24	116	20.5	M8	4	5	2	98,80
88.475.2002	200	53	30	76	25.5	M10	5	10	1	138,90
88.475.2004	200	53	30	138	25.5	M10	5	10	2	138,90

> 88.476

TORAX

NL Standaard Gegroefde Bek voor precisie machinespanklem 88.440, 88.470 en 88.472
FR Mors rainuré standard pour étau de haute précision 88.440, 88.470 et 88.472
ES Garra ranurada para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
DE Gerillt Back für Präzisionsschraubstöcke 88.440, 88.470 und 88.472
EN Grooved jaw plate for Precision Vise 88.440, 88.470 and 88.472



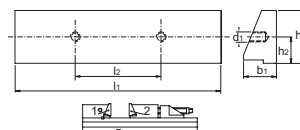
Ref.	l1	h1	b1	l2	h2	d1	Type	€
88.476.1002	100	24.5	14	20	10	M6	1	57,90
88.476.1004	100	24.5	14	62	10	M6	2	57,90
88.476.1202	125	32	19	32	15	M8	1	65,45
88.476.1204	125	32	19	80	15	M8	2	65,45
88.476.1502	150	40	24	50	19	M8	1	78,85
88.476.1504	150	40	24	90	19	M8	2	78,85

Ref.	l1	h1	b1	l2	h2	d1	Type	€
88.476.1702	175	43	24	50	20.5	M8	1	98,80
88.476.1704	175	43	24	116	20.5	M8	2	98,80
88.476.2002	200	53	30	76	25.5	M10	1	137,65
88.476.2004	200	53	30	138	25.5	M10	2	137,65
88.476.3002	300	63	35	90	30.5	M10	1	174,80
88.476.3004	300	63	35	181	30.5	M10	2	174,80

> 88.477

TORAX

- NL Gladde Bek voor precisie machinespanklem, 88.440, 88.470 en 88.472
 FR Mors lisse pour étau de haute précision 88.440, 88.470 et 88.472
 ES Garra lisa para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
 DE Glatte Back für Präzisionsschraubstöcke 88.440, 88.470 und 88.472
 EN Smooth jaw plate for Precision Vise 88.440, 88.470 and 88.472



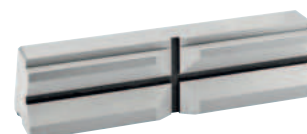
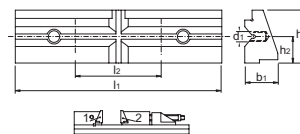
Ref.	l1	h1	b1	l2	h2	d1	Type	€
88.477.1002	100	24.5	14	20	10	M6	1	56,50
88.477.1004	100	24.5	14	62	10	M6	2	56,50
88.477.1202	125	32	19	32	15	M8	1	63,85
88.477.1204	125	32	19	80	15	M8	2	63,85
88.477.1502	150	40	24	50	19	M8	1	75,35
88.477.1504	150	40	24	90	19	M8	2	75,35

Ref.	l1	h1	b1	l2	h2	d1	Type	€
88.477.1702	175	43	24	50	20.5	M8	1	94,50
88.477.1704	175	43	24	116	20.5	M8	2	94,50
88.477.2002	200	53	30	76	25.5	M10	1	135,50
88.477.2004	200	53	30	138	25.5	M10	2	135,50
88.477.3002	300	63	35	90	30.5	M10	1	488,00
88.477.3004	300	63	35	181	30.5	M10	2	488,00

> 88.478

TORAX

- NL Prismabek voor precisie machinespanklem, 88.440, 88.470 en 88.472
 FR Mors prismatique pour étau de haute précision 88.440, 88.470 et 88.472
 ES Garra prismática para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
 DE Prisma Back für Präzisionsschraubstöcke 88.440, 88.470 und 88.472
 EN Vee jaw plate for Precision Vise 88.440, 88.470 and 88.472



Ref.	l1	h1	b1	l2	h2	d1	Type	€
88.478.1004	100	24.5	14	62	10	M6	2	108,15
88.478.1204	125	32	19	80	15	M8	2	120,60
88.478.1504	150	40	24	90	19	M8	2	146,30

Ref.	l1	h1	b1	l2	h2	d1	Type	€
88.478.1704	175	43	24	116	20.5	M8	2	153,45
88.478.2004	200	53	30	138	25.5	M10	2	250,00



- NL Neerdukkwerking bekken precisie machineklem en spanwijdte
 FR Montage des mors sur un étau de précision
 ES Acción de amarre-descendente, garras de mordaza de precisión
 DE Niederzugwirkung Spannbacken präzision Machineschraubstock
 EN Pull down action jaws precision vice

Watch me

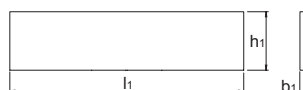


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> 88.870

INTERNATIONAL TOOLS

- NL ECO PRO Set Parallelvlakstukken
 FR Jeu de Cales parallèles ECO PRO
 ES Juego Bases paralelas ECO PRO
 DE ECO PRO Satz Parallelunterlagen
 EN ECO PRO Set of Parallel Supports

**ECO PRO**

Ref.	Nr. Ø	l1	h1xb1	€
88.870.0104	8	100	10-14-18-22-26-30-34-38-42 (4 mm)	177,55
88.870.0128	8	120	12-17-22-25-28-32-36-38 (8 mm)	234,25
88.870.0164	9	160	10-14-18-22-26-30-34-38-42 (4 mm)	207,85
88.870.0168	8	160	12-17-22-25-28-32-36-38 (8 mm)	314,00
88.870.0208	8	200	17-22-26-28-32-36-38-42 (8 mm)	344,00

**> 89.250 Phantom**

NL Set Spantangen, standaard kwaliteit, 15 µm
 FR Jeu de Pinces, qualité standard, 15 µm
 ES Juego de Pinzas, calidad estándar, 15 µm
 DE Satz Spannzangen, Standard-Qualität, 15 µm
 EN Set of Collets, standard quality, 15 µm



DIN
6499-B



Ref.	NR	Type	Ø	€
89.250.1600	10	ER16	1-10	181,75
89.250.2500	15	ER25	2-16	279,00
89.250.3200	18	ER32	3-20	314,00
89.250.4000	23	ER40	4-26	550,00

> 89.252 Phantom

NL Set Spantangen, Ultra precies, 5 µm
 FR Jeu de Pinces, Ultra précis, 5 µm
 ES Juego de Pinzas, Ultrapreciso, 5 µm
 DE Satz Spannzangen, Ultrapräzise, 5 µm
 EN Set of Collets, Ultra precise, 5 µm



DIN
6499-B



Ref.	NR	Type	Ø	€
89.252.1600	10	ER16	1-10	346,00
89.252.2500	15	ER25	2-16	458,00
89.252.3200	18	ER32	3-20	523,00
89.252.4000	23	ER40	4-26	787,00

> 89.264 Phantom

NL Set Spantangen, Coolant Jet, 8 µm
 FR Jeu de Pinces, Coolant Jet, 8 µm
 ES Juego de Pinzas, Coolant Jet, 8 µm
 DE Satz Spannzangen, Coolant Jet, 8 µm
 EN Set of Collets, Coolant Jet, 8 µm



DIN
6499



40
BAR

Ref.	NR	Type	Ø	€
89.264.1600	5	ER16	3,4,6,8,10	324,00
89.264.2500	8	ER25	3,4,6,8,10,12,14,16	500,00
89.264.3200	10	ER32	3,4,6,8,10,12,14,16,18,20	628,00
89.264.4000	9	ER40	4,6,8,10,12,14,16,18,20	740,00

> 89.282 Phantom

NL Set Spantanghouder met Spantangen
FR Coffret avec Mandrin porte-pinces et pinces ER
ES Juego de Portapinzas, pinzas y llave
DE Spannzangensätze mit Spannzangenfutter
EN Set of Collets Chucks

DIN 6499-B
ER 0,015

Ref.	1	2	3	4	€
89.282.0225	MK2 - ER25	-	ER25 Ø 6-10-12-16	82.990.2500	119,85
89.282.0332	MK3 - ER32	-	ER32 Ø6-10-12-16-20	82.990.3200	144,35
89.282.0432	MK4 - ER32	-	ER32 Ø6-10-12-16-20	82.990.3200	148,90
89.282.3032	-	SK30 - ER32	ER32 Ø6-10-12-16-20	82.990.3200	139,20
89.282.4032	-	SK40 - ER32	ER32 Ø6-10-12-16-20	82.990.3200	146,95



NL Maak favorietenlijsten naar keuze (b.v. medewerker en/of machine)
FR Créez les listes de favoris de votre choix (ex. : employés et/ou machine)
ES Cree las listas de favoritos que desee (por ejemplo, por empleado y/o por máquina)
DE Erstellen Sie Favoritenlisten Ihrer Wahl (z.B. Mitarbeiter und/oder Maschine)
EN Create favourite lists of your choice (e.g. per employee and/or per machine)

Watch me



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> 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	22,67
90.130.0251	Box with 10 x 250 ml	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

> 90.150 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.	28,00
90.150.0251	Box with 10 x 250 gr.	257,00

Ref.	Contents	€
90.150.2500	2,5 kg.	144,25
90.150.5000	5 kg.	227,35



Phantom 

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