

Phantom 

**INTERNATIONAL
TOOLS**

COME IN WE'RE
OPEN TILL

19.00  

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 OPEN FOR ORDERS UP TO 18.00 HOURS



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CHECK OUR INNOVATIONS ON PAGE 6

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

ISO	ISO	NL	FR	ES	DE
		Ongelegerd en gelegeerd staal ≤600 N/mm² 1.0037 (St37), 1.0038 (S235JR G2), 1.00402 (C22), 1.1178 (C30E)	Aciers non-alliés ou faiblement alliés ≤600 N/mm² 1.0037 (A37), 1.0038 (E 24-2 Ne), 1.00402 (1C20), 1.1178 (1C30)	Acero no aleado ≤600 N/mm² 1.0037 (S235JR), 1.0038 (S235JR G2), 1.0402 (F.112), 1.1178 (C30E)	Unlegierter und legierter Stahl ≤600 N/mm² 1.0037 (St37), 1.0038 (S235JR G2), 1.00402 (C22), 1.1178 (C30E)
		Ongelegerd en gelegeerd staal 600 - 850 N/mm² 1.0050 (St50-2), 1.0070 (St70-2), 1.0301 (C10), 1.0503 (C45), 1.1121 (Ck10), 1.1191 (C45E), 1.0718 (11SMnPb30), 1.0736 (11SMn37)	Aciers non-alliés ou faiblement alliés 600 - 850 N/mm² 1.0050 (A50-2), 1.0070 (A70-2), 1.0301 (1C10), 1.0503 (1C45), 1.1121 (XC10), 1.1191 (2C45), 1.0718 (S250PB), 1.0736 (S300PB)	Acero no aleado 600 - 850 N/mm² 1.0050 (Fe490-2), 1.0070 (Fe690-2), 1.0301 (F.1151), 1.0503 (F.114), 1.1121 (F.1510-C10K), 1.1191 (C45K), 1.0718 (F.2112-11SMnPb28), 1.0736 (F.2113-11SMn37)	Unlegierter und legierter Stahl 600 - 850 N/mm² 1.0050 (St50-2), 1.0070 (St70-2), 1.0301 (C10), 1.0503 (C45), 1.1121 (Ck10), 1.1191 (C45E), 1.0718 (11SMnPb30), 1.0736 (11SMn37)
		Gelegeerd staal 850 - 1000 N/mm² 1.0727 (46S20), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (X210Cr12), 1.2083 (X42Cr13), 1.2767 (X45NiCrMo4), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)	Aciers alliés 850 - 1000 N/mm² 1.0727 (45Mf4), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (Z200C12), 1.2083 (Z40C14), 1.2767 (Y35NCD16), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)	Acero aleado 850 - 1000 N/mm² 1.0727 (46S20), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (F.5212-X210Cr12), 1.2083 (X42Cr13), 1.2767 (X45NiCrMo4), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)	Legierter Stahl 850 - 1000 N/mm² 1.0727 (46S20), 1.0728 (60S20), 1.0757 (46SPb20), 1.2080 (X210Cr12), 1.2083 (X42Cr13), 1.2767 (X45NiCrMo4), 1.5131 (50MnSi4), 1.7003 (38Cr2), 1.7030 (28Cr4), 1.7043 (38Cr4)
		Gelegeerd staal 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)	Aciers alliés 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)	Acero aleado 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)	Legierter Stahl 1000 - 1400 N/mm² 1.5710 (36NiCr6), 1.7035 (41Cr40), 1.7225 (42CrMo4), 1.8519 (31CrMoV9), 1.8550 (34CrAlNi7), 1.5752 (15NiCr13), 1.7131 (16MnCr5), 1.7264 (20CrMo5)
		Gehard en inzetgehard staal 50 - 60 HRC 1.2344 (X40CrMoV5), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2080 (X210Cr12), 1.3343 (S6-5-2)	Aciers trempés et Aciers de cémentation alliés 50 - 60 HRC 1.2344 (Z 40 CDV 5), 1.2767 (X45NiCrMo4), 1.2379 (D2), 1.2080 (Z200C12), 1.3343 (Z85WDCV)	Acero templado 50 - 60 HRC 1.2344 (X40CrMoV5), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2080 (X210Cr12), 1.3343 (S6-5-2)	Gehärteter und einsatzgehärteter Stahl, 50-60 HRC 1.2344 (X40CrMoV5), 1.2767 (X45NiCrMo4), 1.2767 (X45NiCrMo4), 1.2379 (X155CrVMo12-1), 1.2080 (X210Cr12), 1.3343 (S6-5-2)
		Roestvaststaal, INOX ≤850 N/mm² 1.4005 (X12CrS13), 1.4104 (X14CrMos17), 1.4105 (X6CrMoS17), 1.4301 (XCrNi18-10)(304), 1.4305 (X8CrNiS18-9)(303)	Aciers inoxydables ≤850 N/mm² 1.4005 (Z11CF13), 1.4104 (Z13CF17), 1.4105 (Z8CF17), 1.4301 (XCrNi18-10)(304), 1.4305 (X8CrNiS18-9)(303)	Acero inoxidable ≤850 N/mm² 1.4006 (F.3401-X10Cr13), 1.4104 (F.3117-X10Cr17), 1.4301 (F.3504-X5CrNi18-10)(304), 1.4305 (F.3508-X10CrNiS18-09)(303)	Rostfreier Stahl, INOX ≤850 N/mm² 1.4005 (X12CrS13), 1.4104 (X14CrMos17), 1.4105 (X6CrMoS17), 1.4301 (XCrNi18-10)(304), 1.4305 (X8CrNiS18-9)(303)
		Roestvaststaal, INOX >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (X6CrNiMoTi17-12-2)(316Ti)	Aciers inoxydables >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (X6CrNiMoTi17-12-2)(316Ti)	Acero inoxidable >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (F.3535-X6CrNiMoTi17-12-2)(316Ti)	Rostfreier Stahl, INOX >850 N/mm² 1.4438 (X2CrNiMo18-15-4)(317), 1.4404 (X2CrNiMo17-12-2)(316L), 1.4571 (X6CrNiMoTi17-12-2)(316Ti)
		Grijs gietijzer GG <260 HB30 0.6015 (GG 15), 0.6025 (GG 25), 0.6040 (GG 40)	Fontes <260 HB30 0.6015 (GG 15), 0.6025 (GG 25), 0.6040 (GG 40)	Fundición gris con grafito laminado GG <260 HB30 0.6015 (FG15), 0.6025 (FG25), 0.6040 (FG40)	Grauguss GG <260 HB30 0.6015 (GG 15), 0.6025 (GG 25), 0.6040 (GG 40)
		Smeedbaar en Nodulair gietijzer <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)	Fontes à graphites et malléables <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)	Fundición gris con grafito esferoidal <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)	Formbar und dehnbares Gusseisen <260 HB30 0.8145 (GTS-45), 0.8170 (GTS-70-02), 0.7040 (GGG 40), 0.7070 (GGG 70)
		Aluminium en Aluminiumlegeringen 3.0255 (Al99.5), 3.2315 (AlMgSi1), 3.3515 (AlMg1)	Aluminium et Alliages d'Aluminium 3.0255 (A59050C), 3.2315 (AlMgSi1), 3.3515 (AlMg1)	Aluminio y aleaciones de Aluminio 3.0255 (Al99.5), 3.2315 (AlMgSi1), 3.3515 (AlMg1)	Aluminium und Aluminiumlegeringen 3.0255 (Al99.5), 3.2315 (AlMgSi1), 3.3515 (AlMg1)
		Gietaluminium Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9), 3.2581 (G-AlSi12), 3.2583 (G-AlSi12Cu)	Alliages d'Aluminium Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9), 3.2581 (G-AlSi12), 3.2583 (G-AlSi12Cu)	Fundición de Aluminio aleada Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9), 3.2581 (L-2520,21), 3.2583 (L2530)	Druckguss Si 10 - 24% 3.2131 (G-AlSi5Cu1), 3.2153 (G-AlSi7Cu3), (3.2573 G-AlSi9), 3.2581 (G-AlSi12), 3.2583 (G-AlSi12Cu)
		Magnesiumlegeringen 3.5200 (MgMn2), 3.5812 (G-MgAl8Zn1), 3.5612 (G-MgAl6Zn1)	Alliages de Magnésium 3.5200 (MgMn2), 3.5812 (AZ81hp), 3.5612 (AZ61)	Aleaciones de Magnesio 3.5200 (MgMn2), 3.5812 (AZ81hp), 3.5612 (AZ61)	Magnesiumlegeringen 3.5200 (MgMn2), 3.5812 (G-MgAl8Zn1), 3.5612 (G-MgAl6Zn1)
		Koper en Koperlegeringen 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPB), 2.0380 (CuZn39Pb2), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)	Cuivres et Alliages de cuivres 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPB), 2.0380 (CuZn40), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)	Cobre y aleaciones de cobre 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPB), 2.0380 (CuZn39Pb2), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)	Kupfer und Kupferlegeringen 2.0070 (SE-Cu), 2.1020 (CuSn6), 2.1096 (G-CuSn5ZnPB), 2.0380 (CuZn39Pb2), 2.0401 (CuZn39Pb3), 2.0250 (CuZn20), 2.0280 (CuZn33), 2.0332 (CuZn37Pb0,5)
		Koper- en Aluminiumlegering 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (CuBe2) AMPCO® 8, AMPCO® 8 15, AMPCO® 18	Cuivre et Alliages d'Aluminium 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (CuBe1.9) AMPCO® 8, AMPCO® 8 15, AMPCO® 18	Cobre y aleaciones de Aluminio 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (CuBe2) AMPCO® 8, AMPCO® 8 15, AMPCO® 18	Kupfer- und Aluminiumlegeringen 2.0916 (CuAl5), 2.0960 (CuAl9Mn), 2.1050 (CuSn10), 2.0980 (CuAl11Ni), 2.1247 (Cu-Be2) AMPCO® 8, AMPCO® 8 15, AMPCO® 18
		Duroplastic en Thermoplastic PMMA, PVC, PE, PP, PTFE	Duroplastiques et Thermoplastiques PMMA, PVC, PE, PP, PTFE	Duroplásticos en Termoplásticos PMMA, PVC, PE, PP, PTFE	Duroplaste und Thermoplaste PMMA, PVC, PE, PP, PTFE
		Versterkte kunststoffen GFK, CFK	Plastiques réinforcés GFK, CFK	Plásticos reforzados GFK, CFK	Verstärkte Kunststoffe GFK, CFK
		Nikkel- en Cobaltlegeringen Hastelloy, Inconel, Nimonic, Jetalloy	Alliages de Nickel et de Cobalt Hastelloy, Inconel, Nimonic, Jetalloy	Aleaciones de Níquel y Cobalto Hastelloy, Inconel, Nimonic, Jetalloy	Nickel und Kobaltlegeringen Hastelloy, Inconel, Nimonic, Jetalloy
		Titaniumlegeringen 3.7024 (Ti99.5), 3.7114 (TiAl5Sn2.5), 3.7124 (TiCu2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2.5)	Alliages de Titane 3.7024 (T35), 3.7114 (TiAl5Sn2.5), 3.7124 (T-U2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2.5)	Titanio aleado 3.7024 (Ti99.5), 3.7114 (TiAl5Sn2.5), 3.7124 (TiCu2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2.5)	Titanlegeringen 3.7024 (Ti99.5), 3.7114 (TiAl5Sn2.5), 3.7124 (TiCu2), 3.7154 (TiAl6Zr5), 3.7165 (TiAl6V4), 3.7184 (TiAl4Mo4Sn2.5)

Phantom

**INTERNATIONAL
TOOLS**



**COMMITTED, DEDICATED SPECIALISTS
WITH MORE THAN 67 YEARS
OF EXPERIENCE**

› SINCE 1952 › PASSIONATE PEOPLE › 99,9% ERROR FREE

Phantom

RELIABLE, INNOVATIVE, SUPERIOR QUALITY

Phantom is the leading brand of cutting tools of the highest quality for use in metalworking. With no less than 20,000 general metalworking and modern precision-engineering tools to choose from, the extensive range contains machining tools of all types and sizes, including models. At Phantom, not only is the highest quality guaranteed, your options are also limitless. With precision and a long service life assured, we can safely say that, at Phantom, we can handle any cutting task.

BETROUWBAAR, INNOVATIEF EN A-KWALITEIT

Phantom is het A-merk van absolute topkwaliteit voor verspanende gereedschappen ten behoeve van metaalbewerking. U heeft keuze uit maar liefst 20.000 gereedschappen voor algemene metaalbewerking en moderne precisietechniek.

Het assortiment is zeer compleet en bestaat uit verspanend gereedschap in alle soorten en maten, ook de meest bijzondere. Met Phantom heeft u topkwaliteit in handen en zijn uw mogelijkheden werkelijk onbegrensd. U bent verzekerd van precisie en hoge standtijden. Daardoor kunnen wij gerust stellen dat u met Phantom werkelijk ieder verspaningsvraagstuk aan kunt.



UN PRODUIT D'EXCELLENTE QUALITÉ

Les produits de la marque Phantom sont des produits à haute valeur ajoutée technique pour l'usinage des métaux. Notre gamme comporte plus de 20.000 références qui vous permettront de réaliser quasiment toutes les opérations d'usinage avec des produits bénéficiant des dernières avancées technologiques.

Notre catalogue dispose d'un choix d'outils extrêmement large, de toutes les formes, de toutes les dimensions et pour toutes les applications. Vous avez donc accès à des produits d'excellente qualité qui vous offrent des possibilités sans limites. Pour cette raison, nous pouvons en toute sécurité vous assurer que vous serez en mesure, avec les produits Phantom, de maîtriser et de répondre à l'ensemble de vos opérations d'usinage, des plus simples aux plus complexes.

INTERNATIONAL TOOLS

EXTENSIVE AND COMPETITIVELY PRICED

With its extensive, highly competitive range, International Tools offers an attractive array of drills, taps and countersinks in standard sizes. For universal use, available from stock.



UITGEBREID EN PRIJSCONCURREEREND

Met een uitgebreid en zeer prijsconcurrerend assortiment biedt International Tools u een aantrekkelijk aanbod boren, tappen en verzinkfrezen in gangbare maten. Universeel inzetbaar en ook nog eens uit voorraad leverbaar.

UNE LARGE GAMME A PRIX COMPETITIF

Avec International Tools vous accédez à une large gamme de forets, tarauds et fraise à chanfreiner dans les dimensions les plus courantes pour une utilisation universelle, le tout disponible sur stock.

THERE'S NO END TO WHAT YOU CAN DO.



UNA PRESTIGIOSA MARCA DE PRIMERA CALIDAD

Phantom es una prestigiosa marca de herramientas de mecanizado para el procesamiento de metal de alta calidad. Puede elegir entre nada menos que 20.000 herramientas para el procesamiento general de metal y una moderna técnica de precisión.

El surtido es muy completo y consta de herramientas de mecanizado de todo tipo y tamaño. Con Phantom tiene garantizada la calidad y unas posibilidades de trabajo verdaderamente ilimitadas. Precisión y larga vida útil garantizadas. Las ilimitadas se miden en fábrica y se prueban con equipos de última tecnología. Esto nos permite asegurarle que con Phantom es posible mecanizar todo aquello que necesita.

ZUVERLÄSSIG, INNOVATIV UND HÖCHSTER QUALITÄT

Phantom ist die A-Marke für zerspanende Werkzeuge, die für die Metallbearbeitung geeignet sind. Sie können von bis zu 20.000 Werkzeugen wählen für den allgemeinen Maschinenbau und moderne Feinmechanik.

Der Bereich ist sehr komplett und umfasst Bearbeitungswerkzeuge aller Formen und Größen, auch die besonderen. Phantom hat eine Top Qualität, mit grenzenlosen Möglichkeiten und Optionen. Hier ist Präzision und eine lange Lebensdauer gewährleistet. Sie sind Präzision gewährleistet und lange Lebensdauer. Daher können wir Ihnen versprechen, dass unsere Marke Phantom, für alle Ihre Probleme eine Lösung findet.

ECO

- › **LOWEST PRICE**
LAAGSTE PRIJS
PRIX TRÈS COMPÉTITIF
PRECIO MÁS BAJO
NIEDRIGSTER PREIS

**ECO
PRO**

- › **INDUSTRIAL QUALITY**
INDUSTRIE KWALITEIT
QUALITÉ INDUSTRIELLE
CALIDAD INDUSTRIAL
INDUSTRIEQUALITÄT

- › **Basic quality**

Basis kwaliteit
Qualité STANDARD
Calidad básica
Grundlegende Qualität

- › **Suitable for a wide range of materials**

Geschikt voor vele materialen
Adaptée à différents types de matières
Adecuado para muchos materiales
Geeignet für viele Materialien

- › **Professional use**

Professioneel gebruik
Usage professionnel
Uso profesional
Professioneller Einsatz

- › **Favourably priced**

Gunstige prijs
Le meilleur rapport qualité prix
Precio favorable
Günstiger Preis

- › **Suitable for a wide range of materials and stainless steel**

Geschikt voor vele materialen en RVS
Adaptée à différents types de matières ainsi que les inox
Adecuado para muchos materiales y acero inoxidable
Geeignet für viele Materialien und Edelstahl

- › **Professional and industrial use**

Professioneel en industrieel gebruik
Usage professionnel et industriel
Uso profesional e industrial
Professioneller und industrieller Einsatz

UNA AMPLIA GAMA A PRECIOS COMPETITIVOS

El amplio catálogo con precios competitivos de International Tools le ofrece una selección atractiva de brocas, machos y avellanadores de tamaños habituales. Para uso universal y disponibles en stock.

BREIT & PREISBEWUSST

Mit seinem breiten und sehr preisbewussten Programm verfügt International Tools über ein attraktives Angebot universell einsetzbarer Bohrer und Gewindebohrer in gängigen Maßen, die ab Lager lieferbar sind.



ICONEN ICONES ICONOS PIKTOGRAMME

	NL	FR	ES	DE
DIN 225	DIN norm	Norme DIN	Norma DIN	DIN Norm
NORM	Fabriek standaard	Standard usine	Estándar de la fábrica	Werksnorm
DIN 1835-B	Voor cilindrische schacht met Weldon vlak	Pour queue cylindrique avec méplat type Weldon	Para mango cilíndrico con plano de arrastre tipo Weldon	Für Zylinderschaft mit Mitnahmefläche Tyo Weldon
DIN 6535-HA	Cilindrische schacht	Queue cylindrique	Mango cilíndrico	Zylinderschaft
DIN 228-B	Morse Konus Opname	Cône morse	Mango cónico	Morsekegel
ER	ER Spantangen volgens DIN 6499	Pinces ER selon DIN 6499	Pinzas ER según DIN 6499	ER Spannzangen gemäss DIN 6499
B1	Uitvoering VDI-houder	Type Porte-Outils VDI	Tipo portaherramientas VDI	Ausführung VDI-Halter
P	Met pendelinrichting	Avec système pendulaire	Con sistema pendular	Mit Pendelsystem
REVERSAL	Omkeerinrichting	Avec dispositif d'inversion	Con dispositivo de inversión	Mit Umkehrvorrichtung
C T	Druk- en trekcompensatie	Compensation de pression et de traction	Compensación de presión y de tracción	Ausgleich für Druck und Zug
SECURITY LOCK	Met spankracht-borging	Avec trou de serrage	Con agujero de fijación	Mit Spannkraftsicherung
BAJONET	Bajonet opname	Fixation baïonnette	Fijación bayoneta	Bajonet Aufnahme
CAM-LOCK	Camlock opname	Fixation Camlock	Fijación Camlock	Camlock Aufnahme
TYPE XP	Precisie uitvoering	Version de précision	Versión de precisión	Präzisionausführung

	NL	FR	ES	DE
SK	Opname volgens DIN 2080	A queue selon DIN 2080	Con cono según DIN 2080	Aufnahme gemäß DIN 2080
SK	Opname volgens DIN 69871	A queue selon DIN 69871	Con cono según DIN 69871	Aufnahme gemäß DIN 69871
MAS-BT	Opname volgens MAS 403-BT	A queue selon MAS 403-BT	Con cono según MAS 403-BT	Aufnahme gemäß MAS 403-BT
VDI	Opname volgens DIN 69880	A queue selon DIN 69880	Con cono según DIN 69880	Aufnahme gemäß DIN 69880
VDI	Cilindrische schacht	Queue cylindrique	Mango cilíndrico	Zylinderschaft
TYPE A	Standaard uitvoering	Version standard	Versión estándar	Standard Ausführung
AT3	Tolerantieklasse AT3	Classe de tolérance AT3	Clase de tolerancia AT3	Toleranzklasse AT3
0,005	Rondloopnauwkeurigheid 0,005 mm	Concentricité 0,005 mm	Concentricidad 0,005 mm	Rundlaufgeugauigkeit 0,005 mm
110 Nm	Klopvaste uitvoering	Tenue aux percussions	Resistente a percusiones	Schlagfester Ausführung
110 Nm	Maximale spankracht 110 Nm	Couple de serrage maximal 110 Nm	Fijación máxima 110 Nm	Maximalspannkraft 110 Nm
110 Nm	Tandkranssleutel	Clé pour mandrin porte-forets	Llave para portabrocas	Schlüssel für Zahnkranzbohrfutter
110 Nm	Spannsleutel	Clé de mandrin	Llave de apriete	Spannschlüssel
G6,3 12.000 RPM	Balanceerklasse G6,3	Classe d'équilibrage G6,3	Clase de equilibración G6,3	Ausgewuchtet G6,3 bei 12.000 U/min
F7	Tolerantie boringsdiameter	Tolérance d'alésage	Tolerancia de escariado	Toleranz Borungsdurchmesser
n6	Tolerantie buitenmaat	Tolérance du diamètre externe	Tolerancia diámetro externo	Toleranz Aussen-durchmesser

NL **Spannen**
 FR **Serrage et Bridage**
 ES **Fijar y Sujetar**
 DE **Spannwerkzeuge**

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

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



































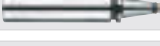











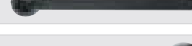











































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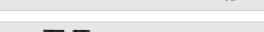



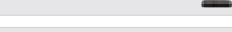









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


























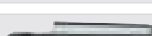

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



























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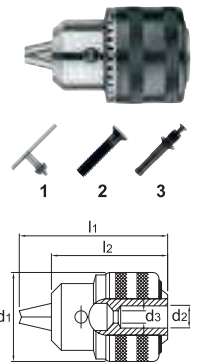
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> 89.282	 <small>DIN 6499-B</small>				P. 128
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> 81.130 Phantom

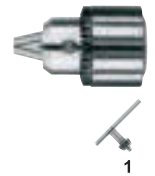
NL Tandkransboorhouder, met sleutel
 FR Mandrin porte-forets à couronne dentée, avec clé
 ES Portabroca, con llave
 DE Zahnkranzbohrfutter, mit Schlüssel



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81.130.1012	1-10	33	B12		60	50	81.150.1400		
81.130.1020	1-10	33	3/8"-24 UNF	5.5	60	50	81.150.1400	81.182.0510	
81.130.1025	1-10	33	1/2"-20 UNF	6.5	60	50	81.150.1400	81.182.0610	81.182.1330
81.130.1312	1,5-13	43	B12		73	59	81.150.0200		
81.130.1320	1,5-13	43	3/8"-24 UNF	5.5	73	59	81.150.0200	81.182.0510	
81.130.1325	1,5-13	43	1/2"-20 UNF	6.5	73	59	81.150.0200	81.182.0610	81.182.1330
81.130.1616	3-16	54	B16		85	66	81.150.0300		
81.130.1625	3-16	54	1/2"-20 UNF	6.5	85	66	81.150.0300	81.182.0610	81.182.1330
81.130.1630	3-16	54	5/8"-16 UN		85	66	81.150.0300		

> 81.140 Phantom

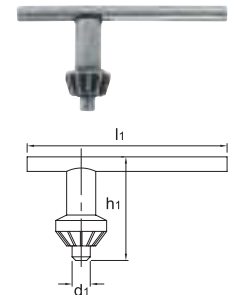
NL Tandkransboorhouder, met sleutel, verzwaarde uitvoering
 FR Mandrin porte-forets à couronne dentée, avec clé, version extra renforcée
 ES Portabroca, con llave, versión extra macizo
 DE Zahnkranzbohrfutter, mit Schlüssel, extra stabile Ausführung



Ref.	Ø mm	d2	d1	l1	l2	1
81.140.0812	0,8-6,5	B12	32	51	39	81.150.2100
81.140.0891	0,8-6,5	J1	32	51	39	81.150.2100
81.140.1016	1-10	B16	43	65	53	81.150.0200
81.140.1092	1-10	J2	43	65	53	81.150.0200
81.140.1316	1-13	B16	53	86	68	81.150.2200
81.140.1396	1-13	J6	53	86	68	81.150.2200
81.140.1618	1-16	B18	57	94	78	81.150.0300
81.140.1693	1-16	J3	57	94	78	81.150.0300
81.140.2022	5-19	B22	65	108	89	81.150.2300
81.140.2093	5-19	J3	65	108	89	81.150.2300

> 81.150 Phantom

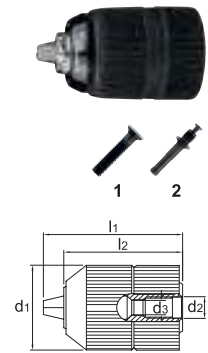
NL Sleutel voor Tandkransboorhouder
 FR Clé pour Mandrin porte-forets à couronne dentée
 ES Llave para Portabroca
 DE Schlüssel für Zahnkranzbohrfutter



Ref.	Type	d1	z	h1	l1	Ref.	Type	d1	z	h1	l1
81.150.0200	S2/K34	6	12	40	80	81.150.2100	CK4	5.5	12	35	60
81.150.0300	S10/K3	8	11	47	85	81.150.2200	S17/K2	6.3	11	45	90
81.150.1400	S14/KG	6	11	32	55	81.150.2300	S13/K4	9.5	12	70	132

> **81.180** **Phantom**

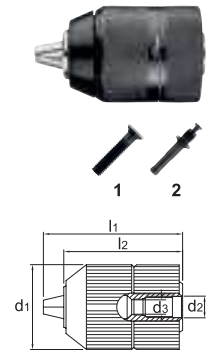
NL **Snelspanboorhouder**
 FR **Mandrin porte-forets auto-serrant**
 ES **Portabroca cierre automático**
 DE **Schnellspanbohrfutter**



Ref.	Ø mm	d2	d3	d1	l2	l1	Watt Max.	1	2
81.180.1020	1-10	3/8"-24 UNF	5.5	41	54	64	400	81.182.0510	
81.180.1025	1-10	1/2"-20 UNF	6.5	41	54	64	400	81.182.0610	81.182.1330
81.180.1035	1-10	6,3 BIT	6.5	41	54	64	400		
81.180.1320	2-13	3/8"-24 UNF	5.5	46	66	81	1000	81.182.0510	
81.180.1325	2-13	1/2"-20 UNF	6.5	46	66	81	1000	81.182.0610	81.182.1330
81.180.1330	2-13	SDS+ 10 mm	6.5	46	66	81	1000	81.182.0610	81.182.1330

> **81.181** **Phantom**

NL **Snelspanboorhouder, in metalen uitvoering**
 FR **Mandrin porte-forets auto-serrant, en métal**
 ES **Portabroca cierre automático, en metal**
 DE **Schnellspanbohrfutter, in Metallausführung**



Ref.	Ø mm	d2	d3	d1	l2	l1	Watt Max.	1	2
81.181.1020	1-10	3/8"-24 UNF	5.5	40.4	56	65.5	1000	81.182.0510	
81.181.1025	1-10	1/2"-20 UNF	6.5	40.4	56	65.5	1000	81.182.0610	81.182.1330
81.181.1320	2-13	3/8"-24 UNF	5.5	42.5	68	75	1000	81.182.0510	
81.181.1325	2-13	1/2"-20 UNF	6.5	42.5	68	75	1000	81.182.0610	81.182.1330
81.181.1330	2-13	SDS+ 10 mm	6.5	42.5	68	75	1000	81.182.0610	81.182.1330

> **81.182** **Phantom**

NL **Toebehoren voor Boorhouders, bout voor boorhouders (links), SDS boorstift**
 FR **Accessoires pour Mandrins porte-forets, boulon (filetage à gauche), Adaptateur SDS**
 ES **Accesorios para Portabrocas, tornillo para portabrocas (a la izquierda), Adaptador SDS**
 DE **Zubehör für Bohrfutter, Schraube für Bohrkopf (links), SDS Bohrstift**



Ref.	Description
81.182.0510	M5 x 0.8
81.182.0610	M6 x 1

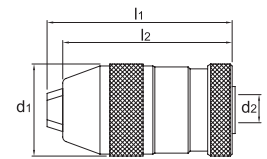
Ref.	Description
81.182.1330	SDS+ / 12" -20 UNF





> 81.200 Phantom

NL Zelfspannende Boorhouder, type A
 FR Mandrin porte-forets auto-serrant, type A
 ES Portabroca cierre automático, tipo A
 DE Selbstspannende Bohrfutter, Typ A

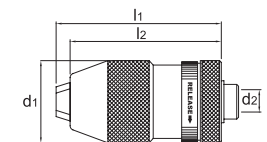


TYPE A

Ref.	Ø mm	d2	d1	l1	l2	Type
81.200.0620	0,4-6,5	3/8"-24 UNF	33	74	68	6,5A
81.200.0810	0,8-8	B10	33	70	65	8A
81.200.0812	0,8-8	B12	33	70	65	8A
81.200.0820	0,8-8	3/8"-24 UNF	33	74	68	8A
81.200.0825	0,8-8	1/2"-20 UNF	33	74	68	8A
81.200.0891	0,8-8	J1	33	70	65	8A
81.200.1012	0,8-10	B12	39	80	73	10A
81.200.1016	0,8-10	B16	39	80	73	10A
81.200.1020	0,8-10	3/8"-24 UNF	39	80	73	10A
81.200.1025	0,8-10	1/2"-20 UNF	39	80	73	10A
81.200.1092	0,8-10	J2	39	80	73	10A
81.200.1094	0,8-10	J33	39	80	73	10A
81.200.1312	1-13	B12	44	95	86	13A
81.200.1316	1-13	B16	47	102	92	13A
81.200.1320	2-13	3/8"-24 UNF	44	95	86	13A
81.200.1325	2-13	1/2"-20 UNF	44	95	86	13A
81.200.1392	1-13	J2	44	95	86	13A
81.200.1396	1-13	J6	44	95	86	13A
81.200.1616	3-16	B16	51	105	95	16A
81.200.1618	3-16	B18	51	115	102	16A
81.200.1625	3-16	1/2"-20 UNF	51	115	102	16A
81.200.1630	3-16	5/8"-16 UN	51	115	102	16A
81.200.1696	3-16	J6	51	115	102	16A
81.200.1762	5-20	B18	64	140	127	20A
81.200.1828	5-20	B22	64	140	127	20A
81.200.1894	5-20	J3	64	140	127	20A

> 81.210 Phantom

NL Zelfspannende Boorhouder, klopvast, met spankrachtborging, type A
 FR Mandrin porte-forets auto-serrant, tenue aux percussions, avec trou de serrage, type A
 ES Portabroca cierre automático, para taladros de percusión, sistema de autoapriete, con cierre de seguridad, tipo A
 DE Selbstspannende Bohrfutter, schlagfest, mit Spannkraftsicherung, Typ A

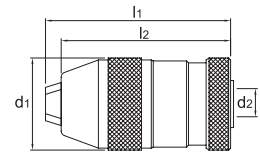


TYPE A SECURITY LOCK

Ref.	Ø mm	d2	d1	l1	l2	Type
81.210.1012	0,8-10	B12	38	85	79	10A
81.210.1030	0,8-10	1/2"-20 UNF	38	85	79	10A
81.210.1316	1,5-13	B16	44	100	92	13A
81.210.1330	1,5-13	1/2"-20 UNF	44	100	92	13A

> **81.230 Phantom**

- NL Zelfspannende Precisieboorhouder, verzwaarde uitvoering, type P
- FR Mandrin porte-forets 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

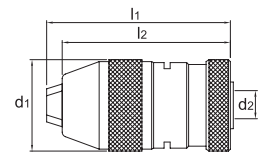


TYPE P $\pm 0,04$

Ref.	Ø mm	d2	d1	l1	l2	Type	1
81.230.0612	0,3-6,5	B12	33	70	62	6,5P	81.412.0600
81.230.0812	0,3-8	B12	38	74	67	8P	81.412.0800
81.230.1012	0,5-10	B12	43	89	81	10P	81.412.1000
81.230.1016	0,5-10	B16	43	89	81	10P	81.412.1000
81.230.1316	1-13	B16	49	103	91	13P	81.412.1300
81.230.1325	1-13	1/2"-20 UNF	49	103	91	13P	81.412.1300
81.230.1616	3-16	B16	55	107	95	16P	81.412.1600
81.230.1618	3-16	B18	55	107	95	16P	81.412.1600

> **81.250 Phantom**

- NL Zelfspannende Precisieboorhouder, verzwaarde uitvoering, type XP
- FR Mandrin porte-forets 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

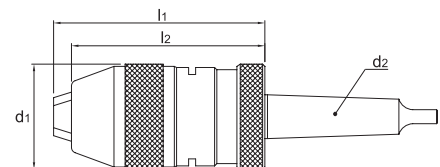


TYPE XP $\pm 0,04$

Ref.	Ø mm	d2	d1	l1	l2	Type	1	2
81.250.0612	0,3-6,5	B12	33	70	62	6,5XP	81.412.0600	81.413.0600
81.250.0812	0,3-8	B12	38	74	67	8XP	81.412.0800	81.413.0800
81.250.1012	0,5-10	B12	43	89	81	10XP	81.412.1000	81.413.1000
81.250.1016	0,5-10	B16	43	89	81	10XP	81.412.1000	81.413.1000
81.250.1316	1-13	B16	49	103	91	13XP	81.412.1300	81.413.1300
81.250.1616	3-16	B16	55	107	95	16XP	81.412.1600	81.413.1300
81.250.1618	3-16	B18	55	107	95	16XP	81.412.1600	81.413.1600

> **81.300 Phantom**

- NL Zelfspannende Precisieboorhouder, type XP, MK volgens DIN 228-B
- FR Mandrin porte-forets de précision auto-serrant, type XP, CM selon DIN 228-B
- ES Portabroca de precisión, cierre automático, tipo XP, CM según DIN 228-B
- DE Selbstspannende Präzisionsbohrfutter, Typ XP, MK nach DIN 228-B



DIN 228-B TYPE XP $\pm 0,04$

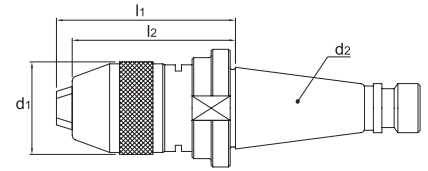
Ref.	Ø mm	d2	d1	l1	l2	Type	1	2
81.300.0208	0,3-8	MK 2	38	72	65	8XP	81.412.0800	81.413.0800
81.300.0213	1-13	MK 2	48	92	80	13XP	81.412.1300	81.413.1300
81.300.0313	1-13	MK 3	48	92	80	13XP	81.412.1300	81.413.1300
81.300.0316	3-16	MK 3	54	96	85	16XP	81.412.1600	81.413.1600
81.300.0413	1-13	MK 4	48	92	80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





> 81.303 Phantom

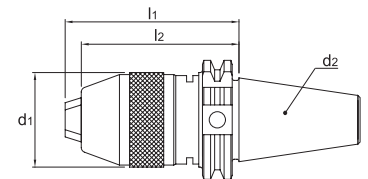
- NL Zelfspannende Precisieboorhouder, type XP, SK volgens DIN 2080
 FR Mandrin porte-forets de précision auto-serrant, type XP, SA selon DIN 2080
 ES Portabroca de precisión, cierre automático, tipo XP, SK según DIN 2080
 DE Selbstspannende Präzisionsbohrfutter, Typ XP, SK nach DIN 2080



Ref.	Ø mm	d2	d1	l1	l2	Type	1	2	3
81.303.3008	0,3-8	SK30	38	76	70	8XP	81.412.0800	81.413.0800	81.414.0800
81.303.4008	0,3-8	SK40	38	69	63	8XP	81.412.0800	81.413.0800	81.414.0800
81.303.4013	1-13	SK40	48	89	78	13XP	81.412.1300	81.413.1300	81.414.1300
81.303.4016	3-16	SK40	55	101	90	16XP	81.412.1600	81.413.1600	81.414.1640
81.303.5013	1-13	SK50	48	101	90	13XP	81.412.1300	81.413.1300	81.414.1300
81.303.5016	3-16	SK50	55	83	72	16XP	81.412.1600	81.413.1600	81.414.1650

> 81.304 Phantom

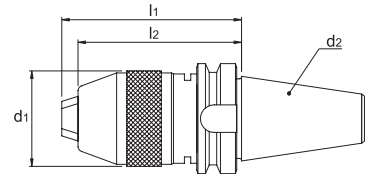
- NL Zelfspannende Precisieboorhouder, type XP, SK volgens DIN 69871
 FR Mandrin porte-forets de précision auto-serrant, type XP, SA selon DIN 69871
 ES Portabroca de precisión, cierre automático, tipo XP, SK según DIN 69871
 DE Selbstspannende Präzisionsbohrfutter, Typ XP, SK nach DIN 69871



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

> **81.306 Phantom**

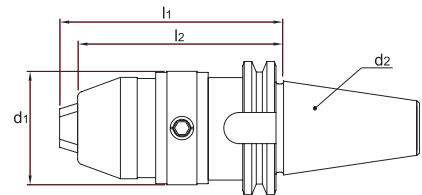
- NL Zelfspannende Precisieboorhouder, type XP, BT volgens MAS 403 BT
- FR Mandrin porte-forets de précision auto-serrant, type XP, BT selon MAS 403 BT
- ES Portabroca de precisión, cierre automático, tipo XP, BT según MAS 403 BT
- DE Selbstspannende Präzisionsbohrfutter, Typ XP, BT nach MAS 403 BT



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

> **81.320 Phantom**

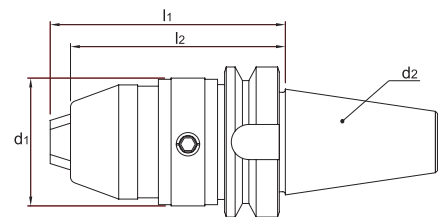
- NL Ultra Precisieboorhouder, type XPF, compleet met spansleutel, SK volgens DIN 69871
- FR Mandrin porte-forets de ultra haute précision auto-serrant, type XPF, avec clé de serrage, SA selon DIN 69871
- ES Portabroca de precisión super alta, tipo XPF, se suministra con llave de apriete, SK según DIN 69871
- DE Ultra-Präzisionsbohrfutter, Typ XPF, Komplett mit Spanschlüssel, SK nach DIN 69871



Ref.	Ø mm	d2	d1	l1	l2	Type	1
81.320.0413	1-13	SK40	54	100	91	13XPF	81.412.1300
81.320.0416	3-16	SK40	57	101	94	16XPF	81.412.1600

> **81.330 Phantom**

- NL Ultra Precisieboorhouder, type XPF, compleet met spansleutel, BT volgens MAS 403 BT
- FR Mandrin porte-forets de ultra haute précision auto-serrant, type XPF, avec clé de serrage, BT selon MAS 403 BT
- ES Portabroca de precisión super alta, tipo XPF, se suministra con llave de apriete, BT según MAS 403 BT
- DE Ultra-Präzisionsbohrfutter, Typ XPF, Komplett mit Spanschlüssel, BT nach MAS 403 BT



Ref.	Ø mm	d2	d1	l1	l2	Type	1
81.330.0413	1-13	BT40	54	105	96	13XPF	81.412.1300
81.330.0416	3-16	BT40	57	106	99	16XPF	81.412.1600



> 81.412 Phantom

NL Reservebekken, voor type P, XP en XPF
 FR Mors de rechange, pour type P, XP et XPF
 ES Garras de recambio, para tipo P, XP y XPF
 DE Ersatzbacken, für Typ P, XP und XPF



Ref.	Ø mm	Type
81.412.0600	0,3-6,5	6,5P-6,5XP
81.412.0800	0,3-8	8P-8XP
81.412.1000	0,5-10	10P-10XP

Ref.	Ø mm	Type
81.412.1300	1-13	13P-13XP-13XPF
81.412.1600	3-16	16P-16XP-16XPF

> 81.413 Phantom

NL Spansleutel, voor XP
 FR clé de serrage, pour type XP
 ES Llave de apriete, para tipo XP
 DE Spannschlüssel, für Typ XP



TYPE
XP



Ref.	Type	l1	d1
81.413.0600	6,5XP	140	27
81.413.0800	8XP	165	28
81.413.1000	10XP	165	34

Ref.	Type	l1	d1
81.413.1300	13XP	165	38
81.413.1600	16XP	165	43

> 81.414 Phantom

NL Reserveboorhouder, XP voor 81.303, 81.304, 81.306 en 81.308
 FR Mandrin de rechange, XP pour 81.303, 81.304, 81.306 et 81.308
 ES Portabroca de recambio, XP para 81.303, 81.304, 81.306 y 81.308
 DE Ersatzbohrfutter, XP für 81.303, 81.304, 81.306 und 81.308



TYPE
XP



Ref.	Ø mm	Type
81.414.0800	0,3-8	8XP
81.414.1300	1-13	13XP

Ref.	Ø mm	Type
81.414.1640	3-16	16XP/40
81.414.1650	3-16	16XP/50

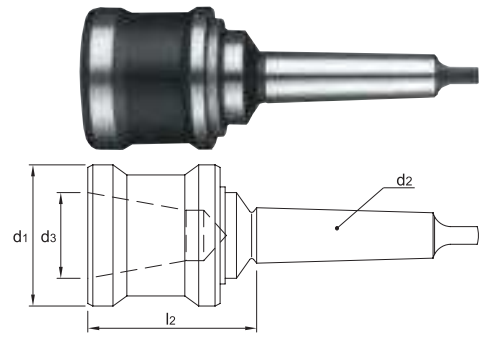
> **81.450** **BISON**

- NL Snelwisselhouder, MK volgens DIN 228-B, BISON type 1721
- FR Porte-douilles à changement rapide, CM selon DIN 228-B, BISON type 1721
- ES Torreta de cambio rápido, CM según DIN 228-B, BISON tipo 1721
- DE Schnellwechselfutter, MK nach DIN 228-B, BISON Typ 1721

DIN
228-B

Ref.	d2	d3	d1	l1
81.450.0240	2	40	65	82.5
81.450.0340	3	40	65	81
81.450.0440	4	40	65	80

Ref.	d2	d3	d1	l1
81.450.0451	4	51.5	83	102
81.450.0551	5	51.5	83	98.5

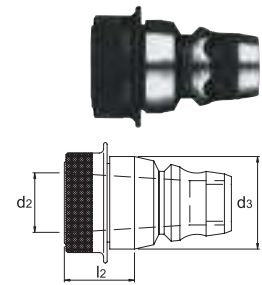


> **81.460** **BISON**

- NL Inzethuls, met inwendige MK, voor 81.450
- FR Douille d'accouplement, avec CM intérieur, pour 81.450
- ES Manguito de unión, con CM interior, para 81.450
- DE Einsätze, mit innerem MK, für 81.450

Ref.	d2	d3	l2
81.460.4001	1	40	29
81.460.4002	2	40	29
81.460.4003	3	40	47
81.460.5101	1	51.5	34

Ref.	d2	d3	l2
81.460.5102	2	51.5	34
81.460.5103	3	51.5	34
81.460.5104	4	51.5	57



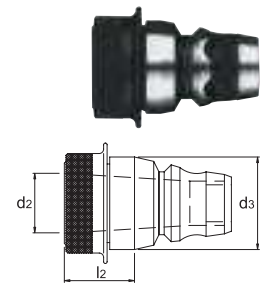
> **81.462** **BISON**

- NL Inzethuls, met inwendige MK en pendelsysteem voor ruimers, voor 81.450
- FR Douille d'accouplement, avec CM intérieur et système pendulaire pour alésoirs, pour 81.450
- ES Manguito de unión, con CM interior y sistema pendular para escariadores, para 81.450
- DE Einsätze, mit innerem MK und Pendelsystem für Reibahlen, für 81.450

P

Ref.	d2	d3	l2
81.462.4002	2	40	29

Ref.	d2	d3	l2
81.462.4003	3	40	47

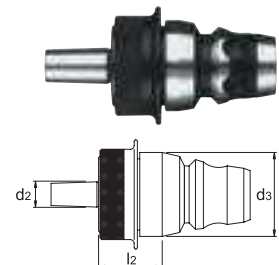


> **81.463** **BISON**

- NL Inzethuls, met uitwendige boorhouderopname, voor 81.450
- FR Douille d'accouplement, avec connecteur porte-forets externe, pour 81.450
- ES Manguito de unión, con conector portabrocas exterior, para 81.450
- DE Einsätze, mit auswendige Bohrfutteraufnahme, für 81.450

Ref.	d2	d3	l2
81.463.4012	B12	40	32.5
81.463.4016	B16	40	34

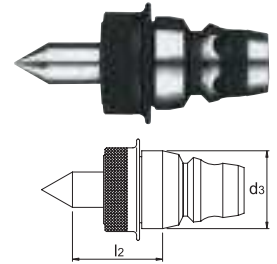
Ref.	d2	d3	l2
81.463.5116	B16	51.5	39





> 81.464 BISON

- NL Inzethuls, met uitwendige 60° centreerpunt, voor 81.450
 FR Douille d'accouplement, avec pointe à centrer externe de 60°, pour 81.450
 ES Manguito de unión, con punta de centrado exterior de 60°, para 81.450
 DE Einsätze, mit äußerer Zentrierspitze 60°, für 81.450



Ref.	d3	l2
81.464.4000	40	61

Ref.	d3	l2

> 81.510 AKON

- NL Snijplaathouder
 FR Coffret porte-filières machine
 ES Juego de portacojinetes
 DE Schneideisenhaltersatz



Ref.	1	2
81.510.0100	M1-M6	20x7, 20x5, 16x5
81.510.0200	M4,5-M14	38x14, 30x11, 25x9, 20x7

Ref.	1	2
81.510.0300	M16-M24	45x18, 55x22, 45x14, 55x16

> 81.520 AKON

- NL Tap- en Snijplaathouder
 FR Coffret porte-tarauds et porte-filières machine
 ES Juego de Portamachos y Portacojinetes
 DE Gewindebohrer und Schneideisenhaltersatz

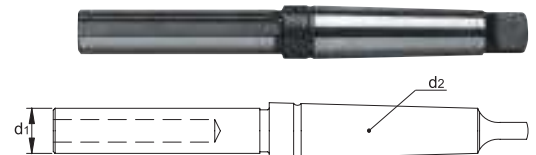


Ref.	1	2	3
81.520.0100	M1-M6	M1-M12	20x7, 20x5, 16x5
81.520.0200	M4,5-M14	M3-M16	38x14, 30x11, 25x9, 20x7

Ref.	1	2	3
81.520.0300	M16-M24	M4-M24	45x18, 55x22, 45x14, 55x16

> 81.530 AKON

- NL Opsteekdoorn, MK volgens DIN 228-B
 FR Mandrin support pour porte-tarauds et porte-filières, CM selon DIN 228-B
 ES Espiga para portamachos y porta terrajas, CM según DIN 228-B
 DE Aufsteckdorne, MK nach DIN 228-B



DIN
228-B

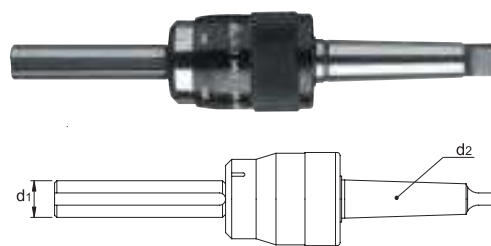
Ref.	Nr.	d2	d1
81.530.0101	1	1	12
81.530.0102	1	2	12
81.530.0103	1	3	12
81.530.0202	2	2	20

Ref.	Nr.	d2	d1
81.530.0203	2	3	20
81.530.0204	2	4	20
81.530.0303	3	3	25
81.530.0304	3	4	25

> **81.531 AKON**

- NL Opsteekdoorn, MK volgens DIN 228-B, met instelbare slipkoppeling
- FR Mandrin support pour porte-tarands et porte-filières, CM selon DIN 228-B, à réglage de couple par friction
- ES Espiga para portamachos y porta terrajas, CM según DIN 228-B, con ajuste de par por fricción
- DE Aufsteckdorne, MK nach DIN 228-B, mit einstellbarer Rutschkupplung

DIN
228-B



Ref.	Nr.	d2	d1
81.531.0202	2	2	20
81.531.0203	2	3	20

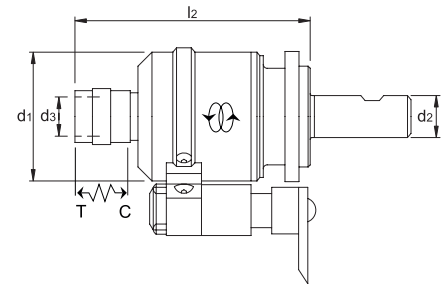
Ref.	Nr.	d2	d1
81.531.0304	3	4	25





> 81.532 Phantom

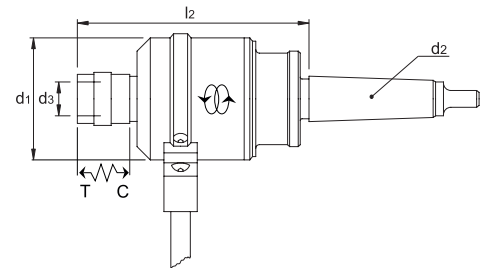
- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, Weldon, voor gebruik met tapinzetstukken
 FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, Weldon, pour douilles porte-tarauds
 ES Aparato roscador, con dispositivo de inversión, con compensación de presión y de tracción, Weldon, para casquillos de roscado
 DE Gewindeschneidmaschinen, mit Umkehrvorrichtung, mit Zug- und Druckausgleich, Weldon, Für den Gebrauch mit Gewindebohrereinsatzstück



Ref.	d2	d3	d1	l2	Ø mm	1	2	T	C
81.532.2512	25	19	72	130	M3-M12	81.633/81.634	81.653/81.654	7	3

> 81.540 Phantom

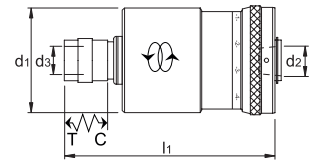
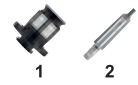
- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, MK volgens DIN 228-B, voor gebruik met tapinzetstukken
 FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, CM selon DIN 228-B, pour douilles porte-tarauds
 ES Aparato roscador, con dispositivo de inversión, con compensación de presión y de tracción, CM según DIN 228-B, para casquillos de roscado
 DE Gewindeschneidmaschinen, mit Umkehrvorrichtung, mit Zug- und Druckausgleich, MK nach DIN 228-B, Für den Gebrauch mit Gewindebohrereinsatzstück



Ref.	d2	d3	d1	l2	Ø mm	1	2	T	C
81.540.0212	MK 2	19	72	135	M3-M12	81.633/81.634	81.653/81.654	7	3
81.540.0220	MK 2	31	83	171	M6-M20	81.636/81.637	81.656/81.657	10	4
81.540.0312	MK 3	19	78	133	M4-M12	81.633/81.634	81.653/81.654	7	3
81.540.0320	MK 3	31	83	171	M8-M20	81.636/81.637	81.656/81.657	10	4
81.540.0420	MK 4	31	83	172	M8-M20	81.636/81.637	81.656/81.657	10	4

> **81.545 Phantom**

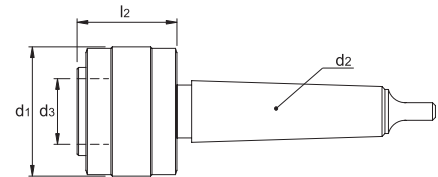
- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, voor gebruik met tapinzetstukken
- FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, pour douilles porte-tarauds
- ES Aparato roscador, con dispositivo de inversión, con compensación de presión y de tracción, para casquillos de roscado
- DE Gewindeschneidmaschinen, mit Umkehrvorrichtung, mit Zug- und Druckausgleich, Für den Gebrauch mit Gewindebohrereinsatzstück



Ref.	d2	d3	d1	Ø mm	1	2	T	C
81.545.0007	J33	13	53	M1,4-7	81.651	84.171	7	3
81.545.0012	J6	19	68	M3-M12	81.653	84.171	7	3
81.545.0020	M20	26	83	M8-M20	81.655	84.172	10	4

> **81.570 Phantom**

- NL Taphouder, MK volgens DIN 228-B, zonder axiale compensatie, voor gebruik met tapinzetstukken
- FR Mandrin à tarauder porte-douilles, CM selon DIN 228-B, sans compensation axiale, pour douilles porte-tarauds
- ES Portamachos de cambio rápido, CM según DIN 228-B, sin compensación axial, para casquillos de roscado
- DE Gewindeschneidfutter, MK nach DIN 228-B, Ohne axialen Ausgleich, Für den Gebrauch mit Gewindebohrereinsatzstück



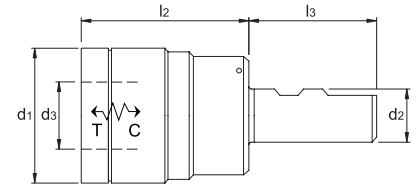
Ref.	d2	d3	d1	l2	Ø mm	1	2
81.570.0212	MK 2	19	33	45	M3-M12	81.633/81.634	81.653/81.654
81.570.0220	MK 2	31	50	61	M8-M20	81.636/81.637	81.656/81.657
81.570.0312	MK 3	19	33	45	M3-M12	81.633/81.634	81.653/81.654
81.570.0320	MK 3	31	50	61	M8-M20	81.636/81.637	81.656/81.657





> 81.602 Phantom

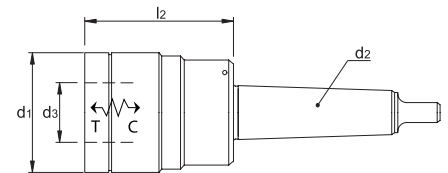
- NL Taphouder, met druk- en trekcompensatie, Weldon, voor gebruik met tapinzetstukken
 FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, Weldon, pour douilles porte-tarauds
 ES Portamachos de cambio rápido, con compensación de presión y de tracción, Weldon, para casquillos de roscado
 DE Gewindeschneidfutter, mit Zug- und Druckausgleich, Weldon, Für den Gebrauch mit Gewindebohrereinsatzstück



Ref.	d2	d3	d1	l2	l3	Ø mm	1	2	T	C
81.602.2012	20	19	38	41	50	M3-M12	81.633/81.634	81.653/81.654	9	9
81.602.2512	25	19	38	41	56	M3-M12	81.633/81.634	81.653/81.654	9	9
81.602.2520	25	31	55	63	56	M8-M20	81.636/81.637	81.656/81.657	15	15
81.602.3212	32	19	38	41	61	M3-M12	81.633/81.634	81.653/81.654	9	9
81.602.3220	32	31	55	63	61	M8-M20	81.636/81.637	81.656/81.657	15	15
81.602.3233	32	48	79	97	61	M14-M33	81.639	81.659	24	24
81.602.4012	40	19	38	41	72	M3-M12	81.633/81.634	81.653/81.654	9	9
81.602.4020	40	31	55	63	72	M8-M20	81.636/81.637	81.656/81.657	15	15
81.602.4033	40	48	79	97	72	M14-M33	81.639	81.659	24	24

> 81.610 Phantom

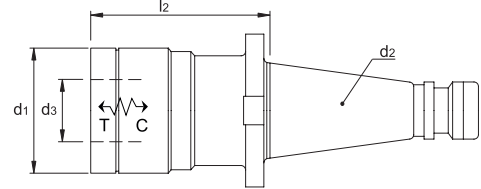
- NL Taphouder, met druk- en trekcompensatie, MK volgens DIN 228-B, voor gebruik met tapinzetstukken
 FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, CM selon DIN 228-B, pour douilles porte-tarauds
 ES Portamachos de cambio rápido, con compensación de presión y de tracción, CM según DIN 228-B, para casquillos de roscado
 DE Gewindeschneidfutter, mit Zug- und Druckausgleich, MK nach DIN 228-B, Für den Gebrauch mit Gewindebohrereinsatzstück



Ref.	d2	d3	d1	l2	Ø mm	1	2	T	C
81.610.0212	MK 2	19	38	47	M3-M12	81.633/81.634	81.653/81.654	7.5	7.5
81.610.0312	MK 3	19	38	47	M3-M12	81.633/81.634	81.653/81.654	7.5	7.5
81.610.0320	MK 3	31	55	71	M8-M20	81.636/81.637	81.656/81.657	12.5	12.5
81.610.0420	MK 4	31	55	72	M8-M20	81.636/81.637	81.656/81.657	12.5	12.5
81.610.0433	MK 4	48	79	105	M14-M33	81.639	81.659	20	20
81.610.0533	MK 5	48	79	105.5	M14-M33	81.639	81.659	20	20
81.610.0548	MK 5	60	96	117	M22-M48	81.641		22.5	22.5

> **81.613 Phantom**

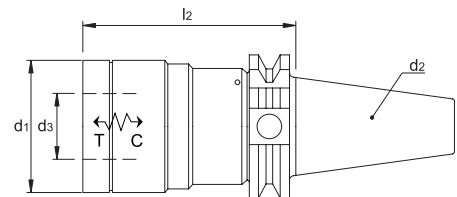
- NL Taphouder, met druk- en trekcompensatie, SK volgens DIN 2080, voor gebruik met tapinzetstukken
- FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, SA selon DIN 2080, pour douilles porte-tarauts
- ES Portamachos de cambio rápido, con compensación de presión y de tracción, SK según DIN 2080, para casquillos de roscado
- DE Gewindeschneidfutter, mit Zug- und Druckausgleich, SK nach DIN 2080, Für den Gebrauch mit Gewindebohrereinsatzstück



Ref.	d2	d3	d1	l2	Ø mm	1	2	T	C
81.613.4012	SK40	19	38	53	M3-M12	81.633/81.634	81.653/81.654	9	9
81.613.4020	SK40	31	55	77	M8-M20	81.636/81.637	81.656/81.657	15	15
81.613.4033	SK40	48	79	118	M14-M33	81.639	81.659	24	24
81.613.5020	SK50	31	55	79	M8-M20	81.636/81.637	81.656/81.657	15	15
81.613.5033	SK50	48	79	125	M14-M33	81.639	81.659	24	24

> **81.614 Phantom**

- NL Taphouder, met druk- en trekcompensatie, SK volgens DIN 69871, voor gebruik met tapinzetstukken
- FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, SA selon DIN 69871, pour douilles porte-tarauts
- ES Portamachos de cambio rápido, con compensación de presión y de tracción, SK según DIN 69871, para casquillos de roscado
- DE Gewindeschneidfutter, mit Zug- und Druckausgleich, SK nach DIN 69871, Für den Gebrauch mit Gewindebohrereinsatzstück



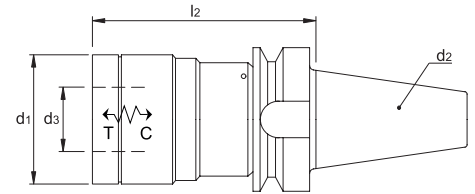
Ref.	d2	d3	d1	l2	Ø mm	1	2	T	C
81.614.4012	SK40	19	38	60	M3-M12	81.633/81.634	81.653/81.654	7.5	7.5
81.614.4020	SK40	31	55	98	M8-M20	81.636/81.637	81.656/81.657	12.5	12.5
81.614.4033	SK40	48	79	151	M14-M33	81.639	81.659	20	20
81.614.5012	SK50	19	38	60	M3-M12	81.633/81.634	81.653/81.654	7.5	7.5
81.614.5020	SK50	31	55	84	M8-M20	81.636/81.637	81.656/81.657	12.5	12.5
81.614.5033	SK50	48	79	139	M14-M33	81.639	81.659	20	20
81.614.5048	SK50	60	96	152	M22-M48	81.641		22.5	22.5





> 81.616 Phantom

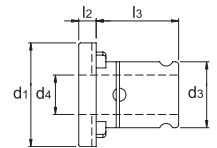
- NL Taphouder, met druk- en trekcompensatie, BT volgens MAS 403 BT, voor gebruik met tapinzetstukken
 FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, BT selon MAS 403 BT, pour douilles porte-tarauds
 ES Portamachos de cambio rápido, con compensación de presión y de tracción, BT según MAS 403 BT, para casquillos de roscado
 DE Gewindeschneidfutter, mit Zug- und Druckausgleich, BT nach MAS 403 BT, Für den Gebrauch mit Gewindebohrereinsatzstück



Ref.	d2	d3	d1	l2	Ø mm	1	2	T	C
81.616.4012	BT40	19	38	67.5	M3-M12	81.633/81.634	81.653/81.654	7.5	7.5
81.616.4020	BT40	31	55	94.5	M8-M20	81.636/81.637	81.656/81.657	12.5	12.5
81.616.4033	BT40	48	79	164.5	M14-M33	81.639	81.659	22.5	22.5
81.616.5012	BT50	19	38	77	M3-M12	81.633/81.634	81.653/81.654	7.5	7.5
81.616.5020	BT50	31	55	102.5	M8-M20	81.636/81.637	81.656/81.657	12.5	12.5
81.616.5033	BT50	48	79	142.5	M14-M33	81.639	81.659	20	20
81.616.5048	BT50	60	96	164.5	M22-M48	81.641		22.5	22.5

> 81.625 Phantom

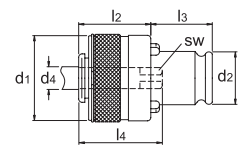
- NL Reduceerbus, voor het reduceren van tapinzetstukken
 FR Douille de réduction, pour réduction de douilles
 ES Casquillo de reducción, para la reducción de casquillos de roscado
 DE Reduzierhülse, zur Reduzierung- Gewindeinsatz



Ref.	d3	d4	d1	l2	l3
81.625.0201	31	19	48	5	35
81.625.0302	48	31	70	6	55.5
81.625.0402	60	31	92	13	63
81.625.0403	60	48	92	13	63

> 81.631 Phantom

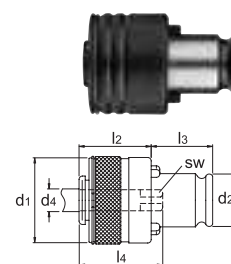
- NL Tapinzetstuk met ratel, DIN, type 13/0 Gr. 0
 FR Douille porte-tarauds avec limiteur de couple, DIN, type 13/0
 Taille 0
 ES Casquillo de roscado con embrague de seguridad, DIN, tipo 13/0
 Tam. 0
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN,
 Typ 13/0 Gr. 0



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.631.0201	M2	DIN 371	2.8	2.1	23	13	21	19.5	21
81.631.0251	M2,5	DIN 371	2.8	2.1	23	13	21	19.5	21
81.631.0301	M3	DIN 371	3.5	2.7	23	13	21	19.5	21
81.631.0351	M3,5	DIN 371	4	3	23	13	21	19.5	21
81.631.0401	M4	DIN 371	4.5	3.4	23	13	21	19.5	21
81.631.0406	M4	DIN 376	2.8	2.1	23	13	21	19.5	21
81.631.0501	M5	DIN 371	6	4.9	23	13	21	19.5	21
81.631.0601	M6	DIN 371	6	4.9	23	13	21	19.5	21

> **81.633 Phantom**

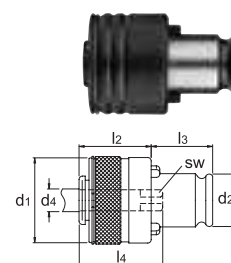
- NL Tapinzetstuk met ratel, DIN, type 19/1 Gr. 1
- FR Douille porte-tarauds avec limiteur de couple, DIN, type 19/1
Taille 1
- ES Casquillo de roscado con embrague de seguridad, DIN, tipo 19/1
Tam. 1
- DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN,
Typ 19/1 Gr. 1



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
81.633.0301	M3	DIN 371	3.5	2.7	32	19	25	21.5	25
81.633.0351	M3,5	DIN 371	4	3	32	19	25	21.5	25
81.633.0401	M4	DIN 371	4.5	3.4	32	19	25	21.5	25
81.633.0406	M4	DIN 376	2.8	2.1	32	19	25	21.5	25
81.633.0501	M5	DIN 371	6	4.9	32	19	25	21.5	25
81.633.0506	M5	DIN 376	3.5	2.7	32	19	25	21.5	25
81.633.0601	M6	DIN 371	6	4.9	32	19	25	21.5	25
81.633.0606	M6	DIN 376	4.5	3.4	32	19	25	21.5	25
81.633.0801	M8	DIN 371	8	6.2	32	19	25	21.5	25
81.633.0806	M8	DIN 376	6	4.9	32	19	25	21.5	25
81.633.1001	M10	DIN 371	10	8	32	19	25	21.5	25
81.633.1006	M10	DIN 376	7	5.5	32	19	25	21.5	25
81.633.1206	M12	DIN 376	9	7	32	19	25	21.5	25
81.633.1406	M14	DIN 376	11	9	32	19	25	21.5	25

> **81.634 Phantom**

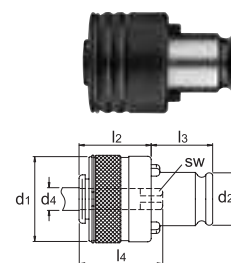
- NL Tapinzetstuk met ratel, ISO, type 19/1 Gr. 1
- FR Douille porte-tarauds avec limiteur de couple, ISO, type 19/1
Taille 1
- ES Casquillo de roscado con embrague de seguridad, ISO, tipo 19/1
Tam. 1
- DE Gewindebohrereinsatzstück mit Sicherheitskupplung, ISO, Typ 19/1
Gr. 1



Ref.	M	d4	sw	d1	d2	l2	l3	l4
81.634.0300	M3	3.15	2.5	32	19	25	21.5	25
81.634.0400	M4	4	3.15	32	19	25	21.5	25
81.634.0500	M5	5	4	32	19	25	21.5	25
81.634.0600	M6	6.3	5	32	19	25	21.5	25

> **81.636 Phantom**

- NL Tapinzetstuk met ratel, DIN, type 31/2 Gr. 2
- FR Douille porte-tarauds avec limiteur de couple, DIN, type 31/2
Taille 2
- ES Casquillo de roscado con embrague de seguridad, DIN, tipo 31/2
Tam. 2
- DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN,
Typ 31/2 Gr. 2

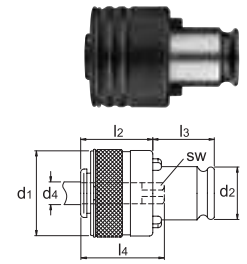


Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.636.0601	M6	DIN 371	6	4.9	50	31	34	35	34
81.636.0801	M8	DIN 371	8	6.2	50	31	34	35	34
81.636.0806	M8	DIN 376	6	4.9	50	31	34	35	34
81.636.1001	M10	DIN 371	10	8	50	31	34	35	34
81.636.1006	M10	DIN 376	7	5.5	50	31	34	35	34
81.636.1206	M12	DIN 376	9	7	50	31	34	35	34
81.636.1406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



> 81.637 Phantom

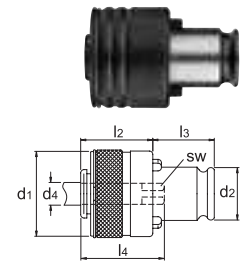
- NL Tapinzetstuk met ratel, ISO, type 31/2 Gr. 2
 FR Douille porte-tarands avec limiteur de couple, ISO, type 31/2
 Taille 2
 ES Casquillo de roscado con embrague de seguridad, ISO, tipo 31/2
 Tam. 2
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, ISO, Typ 31/2
 Gr. 2



Ref.	M	d4	sw	d1	d2	l2	l3	l4
81.637.0600	M6	6.3	5	50	31	34	35	34
81.637.1206	M12	9	7.1	50	31	34	35	34
81.637.1400	M14	11.2	9	50	31	34	35	34
81.637.1600	M16	12.5	10	50	31	34	35	34
81.637.1800	M18	14	11.2	50	31	34	35	34
81.637.2000	M20	14	11.2	50	31	34	35	34
81.637.2200	M22	16	12.5	50	31	34	35	34

> 81.639 Phantom

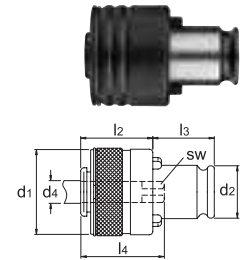
- NL Tapinzetstuk met ratel, DIN, type 48/3 Gr. 3
 FR Douille porte-tarands avec limiteur de couple, DIN, type 48/3
 Taille 3
 ES Casquillo de roscado con embrague de seguridad, DIN, tipo 48/3
 Tam. 3
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN,
 Typ 48/3 Gr. 3



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

> 81.641 Phantom

- NL Tapinzetstuk met ratel, DIN, type 60/4 Gr. 4
 FR Douille porte-tarands avec limiteur de couple, DIN, type 60/4
 Taille 4
 ES Casquillo de roscado con embrague de seguridad, DIN, tipo 60/4
 Tam. 4
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN,
 Typ 60/4 Gr. 4

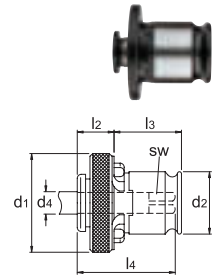


NIEUW / NOUVEAU / NUEVO / NEU

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

> **81.651 Phantom**

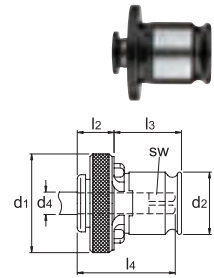
- NL Tapinzetstuk zonder ratel, DIN, type 13/10 Gr. 0
- FR Douille porte-tarands sans limiteur de couple, DIN, type 13/10
Taille 0
- ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 13/10
Tam. 0
- DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
Typ 13/10 Gr. 0



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.651.0201	M2	DIN 371	2.8	2.1	22	13	7	19.5	8
81.651.0251	M2,5	DIN 371	2.8	2.1	22	13	7	19.5	8
81.651.0301	M3	DIN 371	3.5	2.7	22	13	7	19.5	8
81.651.0351	M3,5	DIN 371	4	3	22	13	7	19.5	8
81.651.0401	M4	DIN 371	4.5	3.4	22	13	7	19.5	8
81.651.0501	M5	DIN 371	6	4.9	22	13	7	19.5	8
81.651.0601	M6	DIN 371	6	4.9	22	13	7	19.5	8

> **81.653 Phantom**

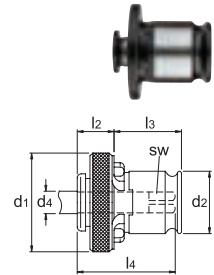
- NL Tapinzetstuk zonder ratel, DIN, type 19/11 Gr. 1
- FR Douille porte-tarands sans limiteur de couple, DIN, type 19/11
Taille 1
- ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 19/11
Tam. 1
- DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
Typ 19/11 Gr. 1



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.653.0301	M3	DIN 371	3.5	2.7	30	19	7	21.5	10
81.653.0351	M3,5	DIN 371	4	3	30	19	7	21.5	10
81.653.0401	M4	DIN 371	4.5	3.4	30	19	7	21.5	10
81.653.0506	M5	DIN 376	3.5	2.7	30	19	7	21.5	10
81.653.0601	M5+M6	DIN 371	6	4.9	30	19	7	21.5	10
81.653.0606	M6	DIN 376	4.5	3.4	30	19	7	21.5	10
81.653.0801	M8	DIN 371	8	6.2	30	19	7	21.5	10
81.653.0806	M8	DIN 376	6	4.9	30	19	7	21.5	10
81.653.1001	M10	DIN 371	10	8	30	19	7	21.5	10
81.653.1006	M10	DIN 376	7	5.5	30	19	7	21.5	10
81.653.1206	M12	DIN 376	9	7	30	19	7	21.5	10

> **81.654 Phantom**

- NL Tapinzetstuk zonder ratel, ISO, type 19/11 Gr. 1
- FR Douille porte-tarands sans limiteur de couple, ISO, type 19/11
Taille 1
- ES Casquillo de roscado sin embrague de seguridad, ISO, tipo 19/11
Tam. 1
- DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, ISO,
Typ 19/11 Gr. 1



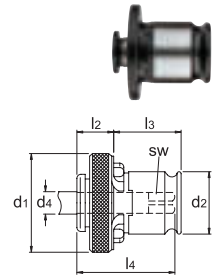
Ref.	M	d4	sw	d1	d2	l2	l3	l4
81.654.0300	M3	3.15	2.5	30	19	7	21.5	10
81.654.0400	M4	4	3.15	30	19	7	21.5	10
81.654.0500	M5	5	4	30	19	7	21.5	10
81.654.0600	M6	6.3	5	30	19	7	21.5	10





> 81.655 Phantom

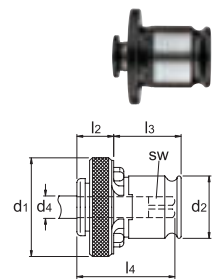
- NL Tapinzetstuk zonder ratel, DIN, type 26/12 Gr. 1
 FR Douille porte-tarauds sans limiteur de couple, DIN, type 26/12
 Taille 1
 ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 26/12
 Tam. 1
 DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
 Typ 26/12 Gr. 1



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.655.0801	M8	DIN 371	8	6.2	40	26	15	32	23
81.655.0806	M8	DIN 376	6	4.9	40	26	15	32	23
81.655.1001	M10	DIN 371	10	8	40	26	15	32	23
81.655.1006	M10	DIN 376	7	5.5	40	26	15	32	23
81.655.1206	M12	DIN 376	9	7	40	26	15	32	23
81.655.1406	M14	DIN 376	11	9	40	26	15	32	23
81.655.1606	M16	DIN 376	12	9	40	26	15	32	23
81.655.1806	M18	DIN 376	14	11	40	26	15	32	23
81.655.2006	M20	DIN 376	16	12	40	26	15	32	23

> 81.656 Phantom

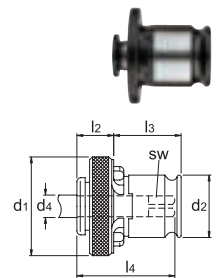
- NL Tapinzetstuk zonder ratel, DIN, type 31/2 Gr. 2
 FR Douille porte-tarauds sans limiteur de couple, DIN, type 31/2
 Taille 2
 ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 31/2
 Tam. 2
 DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
 Typ 31/2 Gr. 2



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.656.0501	M5	DIN 371	6	4.9	46	31	11	35	19
81.656.0601	M6	DIN 371	6	4.9	46	31	11	35	19
81.656.0801	M8	DIN 371	8	6.2	46	31	11	35	19
81.656.0806	M8	DIN 376	6	4.9	46	31	11	35	19
81.656.1001	M10	DIN 371	10	8	46	31	11	35	19
81.656.1006	M10	DIN 376	7	5.5	46	31	11	35	19
81.656.1206	M12	DIN 376	9	7	46	31	11	35	19
81.656.1406	M14	DIN 376	11	9	46	31	11	35	19
81.656.1606	M16	DIN 376	12	9	46	31	11	35	19
81.656.1806	M18	DIN 376	14	11	46	31	11	35	19
81.656.2006	M20	DIN 376	16	12	46	31	11	35	19

> 81.657 Phantom

- NL Tapinzetstuk zonder ratel, ISO, type 31/12 Gr. 2
 FR Douille porte-tarauds sans limiteur de couple, ISO, type 31/12
 Taille 2
 ES Casquillo de roscado sin embrague de seguridad, ISO, tipo 31/12
 Tam. 2
 DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, ISO,
 Typ 31/12 Gr. 2



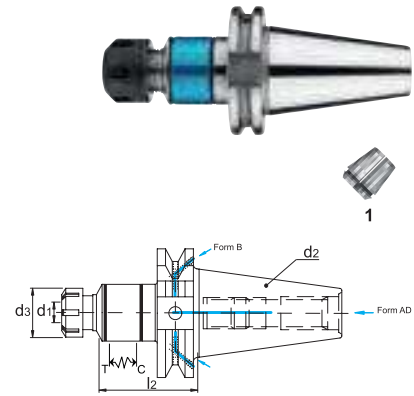
Ref.	M	d4	sw	d1	d2	l2	l3	l4
81.657.0600	M6	6.3	5	46	31	11	35	19
81.657.1400	M14	11.2	9	46	31	11	35	19
81.657.1600	M16	12.5	10	46	31	11	35	19
81.657.1800	M18	14	11.2	46	31	11	35	19
81.657.2000	M20	14	11.2	46	31	11	35	19

> **81.684 Phantom**

- NL Synchro Taphouder SK volgens DIN 69871-AD/B, voor ER spantangen (met vierkant)
- FR Mandrin à tarauder Synchro SA selon DIN 69871-AD/B, pour utilisation avec pinces ER (avec carré d'entraînement)
- ES Portamachos Synchro SK según DIN 69871-AD/B, para uso con ER pinzas (con cuadrado interior)
- DE Synchro Gewindeschneidfutter SK nach DIN 69871-AD/B, für ER-Spannzangen (mit Vierkant)



Ref.	d2	d1	Ø mm	l2	d3	T	C	1
81.684.4016	SK40	ER16	1-10	79	32	0.5	0.5	82.880
81.684.4025	SK40	ER25	3,5-16	84	42	0.5	0.5	82.885
81.684.5025	SK50	ER25	3,5-16	84	42	0.5	0.5	82.885

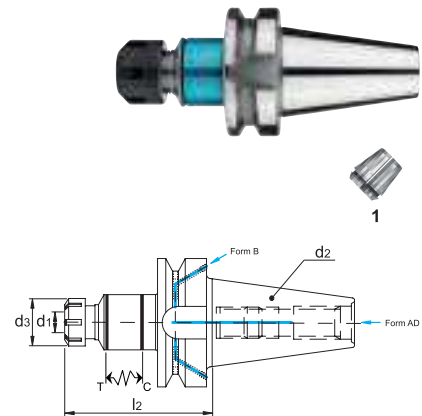


> **81.686 Phantom**

- NL Synchro Taphouder BT volgens MAS 403-BT AD/B, voor ER spantangen (met vierkant)
- FR Mandrin à tarauder Synchro BT selon MAS 403-BT AD/B, pour utilisation avec pinces ER (avec carré d'entraînement)
- ES Portamachos Synchro BT según MAS 403-BT AD/B, para uso con ER pinzas (con cuadrado interior)
- DE Synchro Gewindeschneidfutter BT nach MAS 403-BT AD/B, für ER-Spannzangen (mit Vierkant)



Ref.	d2	d1	Ø mm	l2	d3	T	C	1
81.686.4016	BT40	ER16	1-10	79	32	0.5	0.5	82.880
81.686.4025	BT40	ER25	3,5-16	89	42	0.5	0.5	82.885
81.686.5025	BT50	ER25	3,5-16	110	42	0.5	0.5	82.885

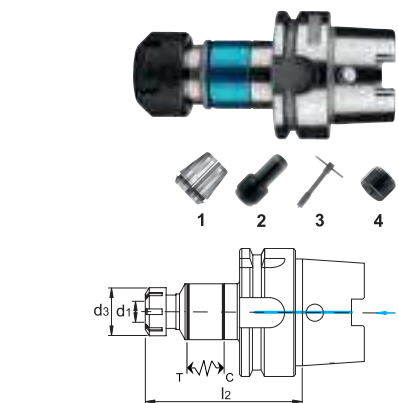


> **81.687 Phantom**

- NL Synchro Taphouder HSK-A volgens DIN 69893, voor ER spantangen (met vierkant)
- FR Mandrin à tarauder Synchro HSK-A selon DIN 69893, pour utilisation avec pinces ER (avec carré d'entraînement)
- ES Portamachos Synchro HSK-A según DIN 69893, para uso con ER pinzas (con cuadrado interior)
- DE Synchro Gewindeschneidfutter HSK-A nach DIN 69893, für ER-Spannzangen (mit Vierkant)



Ref.	d2	d1	Ø mm	l2	d3	T	C	1	2	3	4
81.687.0631	HSK63A	ER16	1-10	89	32	0.5	0.5	82.880	84.790.1800	84.791.1800	84.789.1800
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
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



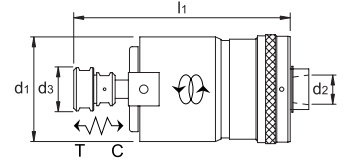
NIEUW / NOUVEAU / NUEVO / NEU





> 81.700 INTERNATIONAL TOOLS

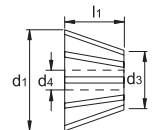
- NL ECO PRO Tapapparaat, met omkeerinrichting, met druk- en trek-compensatie, met instelbare slipkoppeling
 FR Appareil à tarauder ECO PRO, dispositif d'inversion, à compensation de pression et de traction, à réglage de couple par friction
 ES Aparato roscador ECO PRO, con dispositivo de inversión, con compensación de presión y de tracción, con ajuste de par por fricción
 DE ECO PRO Gewindeschneidmaschinen, mit Umkehrvorrichtung, mit Zug- und Druckausgleich, mit einstellbarer Rutschkupplung



Ref.	Ø mm	d1	d2	d3	l2	x:y	RPM	Release	1	2
81.700.0070	M2-M7	54	B16	23	129.5	01:02.4	1500	3.5	81.710	84.170
81.700.0120	M5-M12	74	B16	28	156	01:02.2	1000	4	81.710	84.170
81.700.0200	M8-M20	89	B22	38	205.5	01:02.3	600	6	81.710	84.170

> 81.710 INTERNATIONAL TOOLS

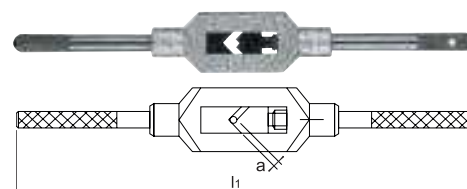
- NL ECO PRO Rubberflex spantang, voor 81.700
 FR Pince de serrage Rubberflex ECO PRO, pour 81.700
 ES Pinza de sujeción Rubberflex ECO PRO, parra 81.700
 DE ECO PRO Rubberflex-Spannzangen, für 81.700



Ref.	d1	d3	d4	l1	M	Ø mm	Ref.	d1	d3	d4	l1	M	Ø mm
81.710.0204	13.3	4.5	2.5	11	M2-M4	2,5-4,5	81.710.0712	20.5	10	6.5	13	M7-M12	6,5-10
81.710.0407	13.3	6.5	4.5	11	M4-M7	4,5-6,5	81.710.0814	28.5	10	4.5	15	M8-M14	4,5-10
81.710.0510	20.5	6.5	3.5	13	M5-M10	3,5-6,5	81.710.1620	28.5	13	7	15	M16-M20	7,0-13

> **81.900 Phantom**

NL **Verstelbaar Wringijzer, standaard kwaliteit, Zink-legering**
 FR **Tourne à gauche expansible, qualité standard, alliage de zinc**
 ES **Giramacho extensible, calidad estándar, aleación de cinc**
 DE **Verstellbare Windeisen, Standard-Qualität, Zinkdruckguß**



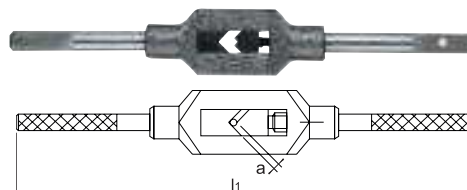
DIN
1814

Ref.	Nr.	M	BSW	BSP	l1	a
81.900.0000	0	M1-M8	1/16-1/4	-	125	2,1-4,9
81.900.0100	1	M1-M10	1/16-3/8	1/8	180	2,1-5,5
81.900.0150	1,5	M1-M12	1/16-1/2	1/8	200	2,1-7
81.900.0200	2	M3,5-M12	5/32-1/2	1/8	280	3-8

Ref.	Nr.	M	BSW	BSP	l1	a
81.900.0300	3	M5-M20	7/32-3/4	1/8-1/2	375	4,9-12
81.900.0400	4	M11-M27	7/16-1	1/4-3/4	500	6,2-16
81.900.0500	5L	M13-M32	1/2-1.1/4	1/4-1	750	7-20

> **81.905 Phantom**

NL **Verstelbaar Wringijzer, extra kwaliteit, staal**
 FR **Tourne à gauche expansible, qualité supérieure, acier**
 ES **Giramacho extensible, calidad superior, acero**
 DE **Verstellbare Windeisen, Extra-Qualität, Stahl**



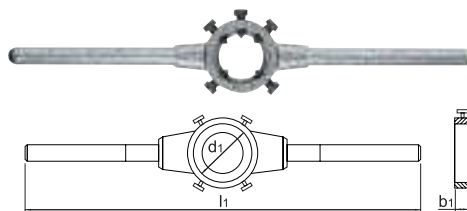
DIN
1814

Ref.	Nr.	M	BSW	BSP	l1	a
81.905.0000	0	M1-M8	1/16-1/4	-	130	2,1-4,9
81.905.0100	1	M1-M10	1/16-3/8	1/8	180	2,1-5,5
81.905.0150	1,5	M1-M12	1/16-1/2	1/8	200	2,1-7
81.905.0200	2	M3,5-M12	5/32-1/2	1/8	280	3-8
81.905.0300	3	M5-M20	7/32-3/4	1/8-1/2	375	4,9-12

Ref.	Nr.	M	BSW	BSP	l1	a
81.905.0400	4	M11-M27	7/16-1	1/4-3/4	500	6,2-16
81.905.0500	5S	M13-M32	1/2-1.1/4	1/4-1	750	7-20
81.905.0600	6L	M18-M42	3/4-1.1/2	1/2-1.1/4	1000	11-24
81.905.0800	8	M25-M64	1-2.1/2	3/4-3	1250	16-40

> **81.910 Phantom**

NL **Snijplaathouder**
 FR **Porte-filières**
 ES **Portaterraja**
 DE **Schneideisenhalter**



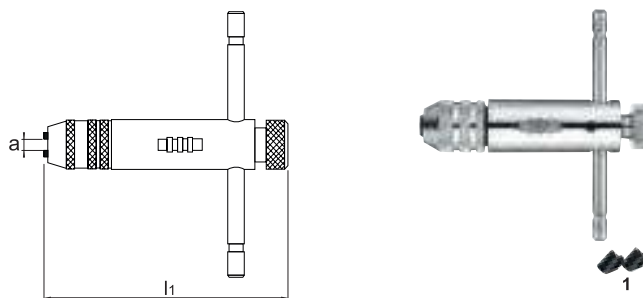
DIN
225

Ref.	d1	b1	l1
81.910.1605	16	5	160
81.910.2005	20	5	200
81.910.2007	20	7	200
81.910.2509	25	9	224
81.910.3011	30	11	280
81.910.3810	38	10	315
81.910.3814	38	14	315
81.910.4514	45	14	450
81.910.4518	45	18	450
81.910.5516	55	16	560
81.910.5522	55	22	560
81.910.6518	65	18	630
81.910.6525	65	25	630

Ref.	d1	b1	l1
81.910.7520	75	20	800
81.910.7530	75	30	800
81.910.9022	90	22	900
81.910.9036	90	36	900
81.910.9122	105	22	1000
81.910.9136	105	36	1000
81.910.9222	120	22	1100
81.910.9236	120	36	1100
81.910.9322	130	22	1100
81.910.9336	130	36	1100
81.910.9422	140	22	1200
81.910.9522	150	22	1200
81.910.9622	160	22	1300

> **81.930 Phantom**

NL **Rateltapkrukje**
 FR **Porte-tarands à cliquet**
 ES **Giramacho en T con carraca**
 DE **Werkzeughalter mit Knarre**

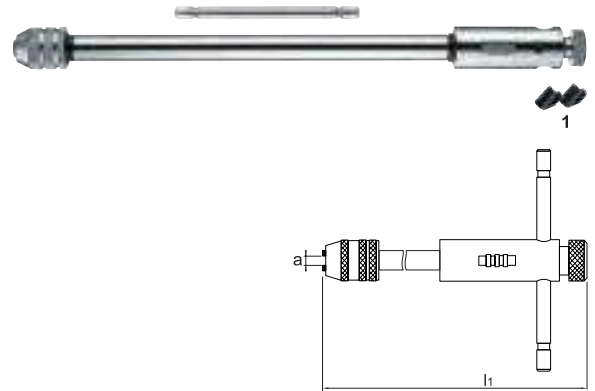


Ref.	Nr.	M	BSW	BSP	a	l1	1
81.930.0100	1	M3-M10	1/8-3/8		2,4-5,5	85	81.938.0100
81.930.0200	2	M5-M12	7/32-1/2	1/8	4,5-7	100	81.938.0200



> 81.935 Phantom

NL Rateltapkrukje, lang
 FR Porte-tarauts à cliquet, version longue
 ES Giromacho en T con carraca, larga
 DE Werkzeughalter mit Knarre, lang



Ref.	Nr.	M	BSW	BSP	a	l1	1
81.935.1000	10	M3-M10	1/8-3/8		2,4-5,5	250	81.938.0100
81.935.2000	20	M5-M12	7/32-1/2	1/8	4,5-7	300	81.938.0200

> 81.938 Phantom

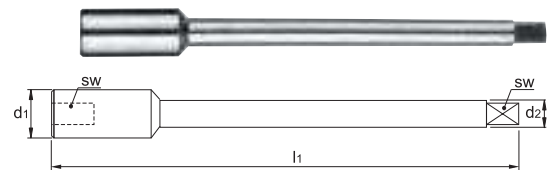
NL set Reservebekken voor Rateltapkrukje
 FR Jeu de Becs de rechange pour Porte-tarauts à cliquet
 ES juego de Mordazas de recambio para Giromacho en T con carraca
 DE Satz Ersatzbacken für Werkzeughalter mit Knarre



Ref.	Nr.	Type
81.938.0100	1	Nr.1 + Nr.10
81.938.0200	2	Nr.2 + Nr.20

> 81.950 Phantom

NL Tapverlengstuk
 FR Rallonge pour tarauds
 ES Prolongador de machos
 DE Gewindebohrer Verlängerung

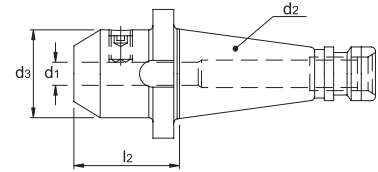


DIN
 377

Ref.	sw	M	BSW	BSP	l1	d1	d2
81.950.0210	2.1	M1-M2,6	1/16-3/32		60	5	2.5
81.950.0240	2.4				70	6	3
81.950.0270	2.7	M3	1/8		80	7	3.5
81.950.0300	3	M3,5			90	7	4
81.950.0340	3.4	M4	5/32		95	8	4.5
81.950.0380	3.8				100	9	5
81.950.0430	4.3				105	10	5.5
81.950.0490	4.9	M4,5-M8	3/16-5/16		110	11	6.5
81.950.0550	5.5	M9-M10	3/8	1/16-1/8	115	12	7
81.950.0620	6.2	M11	7/16		120	14	8
81.950.0700	7	M12	1/2		125	15	9
81.950.0800	8				125	17	10
81.950.0900	9	M13-M16	9/16-5/8	1/4-3/8	130	19	11.2
81.950.1000	10				140	21	12.5
81.950.1100	11	M18	11/16-3/4		150	23	14
81.950.1200	12	M20		1/2	155	25	16
81.950.1300	13				165	27	17
81.950.1450	14.5	M22-M24	7/8-15/16	5/8	175	29	19
81.950.1600	16	M27	1	3/4	180	30	20
81.950.1800	18	M30	1.1/8	7/8	200	33	22.4
81.950.2000	20	M33	1.1/4		210	36	25
81.950.2200	22	M36	1.3/8	1.1/8	220	38	29
81.950.2400	24	M39-M42	1.1/2-1.5/8	1.1/4	235	42	32
81.950.2600	26				250	45	34.5
81.950.2900	29	M45-M48	1.3/4-1.7/8	1.3/8-2	265	50	38.5
81.950.3200	32	M52	2	2.1/4	285	55	42.5

> **82.153 Phantom**

NL **Weldonhouder, SK volgens DIN 2080**
 FR **Porte-outils, SA selon DIN 2080**
 ES **Portaherramientas Weldon, SK según DIN 2080**
 DE **Weldon-Halter, SK nach DIN 2080**



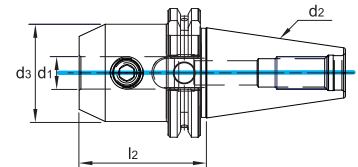
DIN 6359 **DIN 1835-B** SK AT3

Ref.	d2	d1	l2	d3	M	1
82.153.3006	SK30	6	40	25	M12	82.159.0600
82.153.3008	SK30	8	40	28	M12	82.159.0800
82.153.3010	SK30	10	40	35	M12	82.159.1000
82.153.3012	SK30	12	40	42	M12	82.159.1200
82.153.3016	SK30	16	50	48	M12	82.159.1400
82.153.3020	SK30	20	63	52	M12	82.159.1600
82.153.4006	SK40	6	50	25	M16	82.159.0600
82.153.4008	SK40	8	50	28	M16	82.159.0800
82.153.4010	SK40	10	50	35	M16	82.159.1000
82.153.4012	SK40	12	50	42	M16	82.159.1200
82.153.4014	SK40	14	50	44	M16	82.159.1200
82.153.4016	SK40	16	63	48	M16	82.159.1400
82.153.4020	SK40	20	63	52	M16	82.159.1600

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

> **82.154 Phantom**

NL **Weldonhouder, SK volgens DIN 69871**
 FR **Porte-outils, SA selon DIN 69871**
 ES **Portaherramientas Weldon, SK según DIN 69871**
 DE **Weldon-Halter, SK nach DIN 69871**



DIN 6359 **AD** **DIN 1835-B** SK AT3 **G6.3 15.000 RPM**

Ref.	d2	d1	l2	d3	M	1
82.154.4061	SK40	6	50	25	M16	82.159.0600
82.154.4062	SK40	6	100	25	M16	82.159.0600
82.154.4066	SK40	6	160	25	M16	82.159.0600
82.154.4081	SK40	8	50	28	M16	82.159.0800
82.154.4082	SK40	8	100	28	M16	82.159.0800
82.154.4086	SK40	8	160	28	M16	82.159.0800
82.154.4101	SK40	10	50	35	M16	82.159.1000
82.154.4102	SK40	10	100	35	M16	82.159.1000
82.154.4106	SK40	10	160	35	M16	82.159.1000
82.154.4121	SK40	12	50	42	M16	82.159.1200
82.154.4122	SK40	12	100	42	M16	82.159.1200
82.154.4126	SK40	12	160	42	M16	82.159.1200
82.154.4141	SK40	14	50	44	M16	82.159.1200
82.154.4142	SK40	14	100	44	M16	82.159.1200
82.154.4146	SK40	14	160	44	M16	82.159.1200
82.154.4161	SK40	16	63	48	M16	82.159.1400
82.154.4162	SK40	16	100	48	M16	82.159.1400
82.154.4166	SK40	16	160	48	M16	82.159.1400
82.154.4181	SK40	18	63	50	M16	82.159.1400
82.154.4182	SK40	18	100	50	M16	82.159.1400
82.154.4186	SK40	18	160	50	M16	82.159.1400
82.154.4201	SK40	20	63	52	M16	82.159.1600
82.154.4202	SK40	20	100	52	M16	82.159.1600
82.154.4206	SK40	20	160	52	M16	82.159.1600
82.154.4252	SK40	25	100	65	M16	82.159.1800
82.154.4256	SK40	25	160	65	M16	82.159.1800
82.154.4322	SK40	32	100	72	M16	82.159.2000
82.154.4326	SK40	32	160	72	M16	82.159.2000

Ref.	d2	d1	l2	d3	M	1
82.154.4402	SK40	40	115	80	M16	82.159.2001
82.154.5061	SK50	6	63	25	M24	82.159.0600
82.154.5062	SK50	6	100	25	M24	82.159.0600
82.154.5066	SK50	6	160	25	M24	82.159.0600
82.154.5081	SK50	8	63	28	M24	82.159.0800
82.154.5082	SK50	8	100	28	M24	82.159.0800
82.154.5086	SK50	8	160	28	M24	82.159.0800
82.154.5101	SK50	10	63	35	M24	82.159.1000
82.154.5102	SK50	10	100	35	M24	82.159.1000
82.154.5106	SK50	10	160	35	M24	82.159.1000
82.154.5121	SK50	12	63	42	M24	82.159.1200
82.154.5122	SK50	12	100	42	M24	82.159.1200
82.154.5126	SK50	12	160	42	M24	82.159.1200
82.154.5141	SK50	14	63	44	M24	82.159.1200
82.154.5142	SK50	14	100	44	M24	82.159.1200
82.154.5146	SK50	14	160	44	M24	82.159.1200
82.154.5161	SK50	16	63	48	M24	82.159.1400
82.154.5162	SK50	16	100	48	M24	82.159.1400
82.154.5166	SK50	16	160	48	M24	82.159.1400
82.154.5181	SK50	18	63	50	M24	82.159.1400
82.154.5182	SK50	18	100	50	M24	82.159.1400
82.154.5186	SK50	18	160	50	M24	82.159.1400
82.154.5201	SK50	20	63	52	M24	82.159.1600
82.154.5202	SK50	20	100	52	M24	82.159.1600
82.154.5206	SK50	20	160	52	M24	82.159.1600
82.154.5251	SK50	25	80	65	M24	82.159.1800
82.154.5252	SK50	25	100	65	M24	82.159.1800
82.154.5256	SK50	25	160	65	M24	82.159.1800





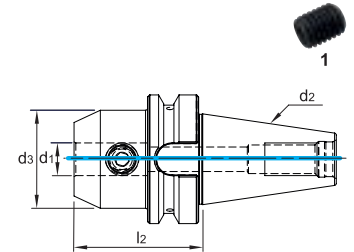
> 82.154 Phantom

Ref.	d2	d1	l2	d3	M	1
82.154.5322	SK50	32	100	72	M24	82.159.2000
82.154.5326	SK50	32	160	72	M24	82.159.2000

Ref.	d2	d1	l2	d3	M	1
82.154.5404	SK50	40	120	80	M24	82.159.2001
82.154.5406	SK50	40	160	80	M24	82.159.2001

> 82.156 Phantom

NL Weldonhouder, BT volgens MAS 403 BT
 FR Porte-outils, BT selon MAS 403 BT
 ES Portaherramientas Weldon, BT según MAS 403 BT
 DE Weldon-Halter, BT nach MAS 403 BT



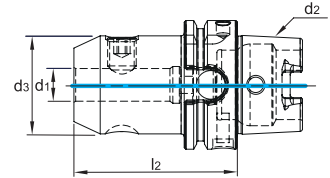
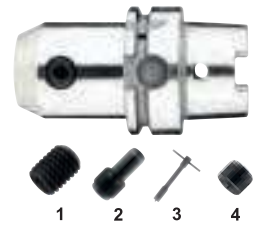
DIN 6359	AD	DIN 1835-B	MAS-BT	AT3	0,005	G6.3 15.000 RPM
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Ref.	d2	d1	l2	d3	M	1
82.156.4061	BT40	6	50	25	M16	82.159.0600
82.156.4062	BT40	6	100	25	M16	82.159.0600
82.156.4066	BT40	6	160	25	M16	82.159.0600
82.156.4081	BT40	8	50	28	M16	82.159.0800
82.156.4082	BT40	8	100	28	M16	82.159.0800
82.156.4086	BT40	8	160	28	M16	82.159.0800
82.156.4101	BT40	10	63	35	M16	82.159.1000
82.156.4102	BT40	10	100	35	M16	82.159.1000
82.156.4106	BT40	10	160	35	M16	82.159.1000
82.156.4121	BT40	12	63	42	M16	82.159.1200
82.156.4122	BT40	12	100	42	M16	82.159.1200
82.156.4126	BT40	12	160	42	M16	82.159.1200
82.156.4141	BT40	14	63	44	M16	82.159.1200
82.156.4142	BT40	14	100	44	M16	82.159.1200
82.156.4146	BT40	14	160	44	M16	82.159.1200
82.156.4161	BT40	16	63	48	M16	82.159.1400
82.156.4162	BT40	16	100	48	M16	82.159.1400
82.156.4166	BT40	16	160	48	M16	82.159.1400
82.156.4181	BT40	18	63	50	M16	82.159.1400
82.156.4182	BT40	18	100	50	M16	82.159.1400
82.156.4186	BT40	18	160	50	M16	82.159.1400
82.156.4201	BT40	20	63	52	M16	82.159.1600
82.156.4202	BT40	20	100	52	M16	82.159.1600
82.156.4206	BT40	20	160	52	M16	82.159.1600
82.156.4252	BT40	25	90	65	M16	82.159.1800
82.156.4256	BT40	25	160	65	M16	82.159.1800
82.156.4322	BT40	32	100	72	M16	82.159.2000
82.156.4326	BT40	32	160	72	M16	82.159.2000
82.156.4402	BT40	40	105	80	M16	82.159.2001
82.156.5061	BT50	6	63	25	M24	82.159.0600

Ref.	d2	d1	l2	d3	M	1
82.156.5062	BT50	6	100	25	M24	82.159.0600
82.156.5066	BT50	6	160	25	M24	82.159.0600
82.156.5081	BT50	8	63	28	M24	82.159.0800
82.156.5082	BT50	8	100	28	M24	82.159.0800
82.156.5086	BT50	8	160	28	M24	82.159.0800
82.156.5101	BT50	10	80	35	M24	82.159.1000
82.156.5102	BT50	10	100	35	M24	82.159.1000
82.156.5106	BT50	10	160	35	M24	82.159.1000
82.156.5121	BT50	12	80	42	M24	82.159.1200
82.156.5122	BT50	12	100	42	M24	82.159.1200
82.156.5126	BT50	12	160	42	M24	82.159.1200
82.156.5141	BT50	14	80	44	M24	82.159.1200
82.156.5142	BT50	14	100	44	M24	82.159.1200
82.156.5146	BT50	14	160	44	M24	82.159.1200
82.156.5161	BT50	16	80	48	M24	82.159.1400
82.156.5162	BT50	16	100	48	M24	82.159.1400
82.156.5166	BT50	16	160	48	M24	82.159.1400
82.156.5181	BT50	18	80	50	M24	82.159.1400
82.156.5182	BT50	18	100	50	M24	82.159.1400
82.156.5186	BT50	18	160	50	M24	82.159.1400
82.156.5201	BT50	20	80	52	M24	82.159.1600
82.156.5202	BT50	20	100	52	M24	82.159.1600
82.156.5206	BT50	20	160	52	M24	82.159.1600
82.156.5252	BT50	25	100	65	M24	82.159.1800
82.156.5256	BT50	25	160	65	M24	82.159.1800
82.156.5322	BT50	32	105	72	M24	82.159.2000
82.156.5326	BT50	32	160	72	M24	82.159.2000
82.156.5402	BT50	40	115	80	M24	82.159.2001
82.156.5406	BT50	40	160	80	M24	82.159.2001

> **82.157 Phantom**

NL **Weldonhouder, HSK-A volgens DIN 69893**
 FR **Porte-outils, HSK-A selon DIN 69893**
 ES **Portaherramientas Weldon, HSK-A según DIN 69893**
 DE **Weldon-Halter, HSK-A nach DIN 69893**



DIN 6359 **HSK-A** **DIN 1835-B** **AT3** **0,005** **G6.3**
 20.000 RPM

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

> **82.159 Phantom**

NL **Spanbout, voor Weldonhouder**
 FR **Vis Allen, pour porte-outils Weldon**
 ES **Tornillo de fijación, para portaherramientas Weldon**
 DE **Spannschrauben, für Weldon-Halter**



DIN 6359

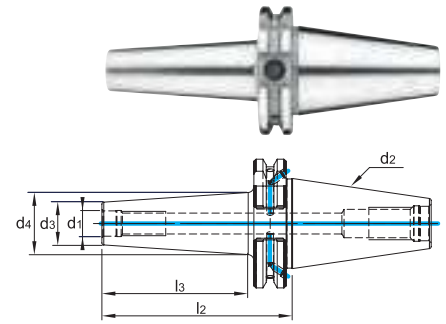
Ref.	Type	M
82.159.0600	6	M6
82.159.0800	8	M8
82.159.1000	10	M10
82.159.1200	12+14	M12
82.159.1400	16+18	M14

Ref.	Type	M
82.159.1600	20	M16
82.159.1800	25	M18x2
82.159.2000	32	M20x2x20
82.159.2001	40	M20x2x25



> 82.214 Phantom

- NL Opschroef opname, met SK-opname volgens DIN 69871-AD/B
 FR Mandrin pour fraises à queue filetée, à queue cône SA selon
 DIN 69871-AD/B
 ES Portafresas con mango roscado, con sujeción SK según
 DIN 69871-AD/B
 DE Einschraubfräseraufnahme, mit SK-Aufnahme nach
 DIN 69871-AD/B



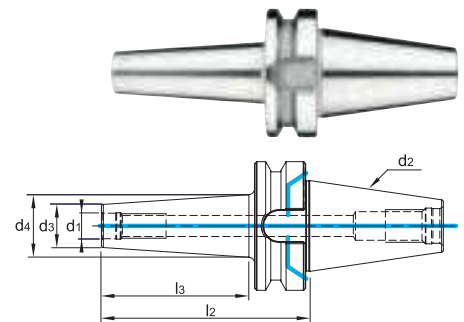
NIEUW NOUVEAU NUEVO NEU



Ref.	d2	d1	l2	l3	d3	d4	M
82.214.4061	SK40	M06	44	25	10	13	M16
82.214.4062	SK40	M06	69	50	10	20	M16
82.214.4063	SK40	M06	94	75	10	23	M16
82.214.4081	SK40	M08	44	25	13	15	M16
82.214.4082	SK40	M08	69	50	13	23	M16
82.214.4083	SK40	M08	94	75	13	23	M16
82.214.4084	SK40	M08	119	100	13	25	M16
82.214.4101	SK40	M10	44	25	18	20	M16
82.214.4102	SK40	M10	69	50	18	23	M16
82.214.4103	SK40	M10	94	75	18	28	M16
82.214.4104	SK40	M10	119	100	18	32	M16
82.214.4121	SK40	M12	44	25	21	24	M16
82.214.4122	SK40	M12	69	50	21	24	M16
82.214.4123	SK40	M12	94	75	21	31	M16
82.214.4124	SK40	M12	119	100	21	33	M16
82.214.4125	SK40	M12	144	125	21	36	M16
82.214.4161	SK40	M16	44	25	29	29	M16
82.214.4162	SK40	M16	69	50	29	34	M16
82.214.4163	SK40	M16	94	75	29	34	M16
82.214.4164	SK40	M16	119	100	29	36	M16
82.214.4165	SK40	M16	144	125	29	40	M16
82.214.5082	SK50	M08	69	50	13	23	M24
82.214.5084	SK50	M08	119	100	13	25	M24
82.214.5086	SK50	M08	169	150	13	30	M24
82.214.5102	SK50	M10	69	50	18	23	M24
82.214.5104	SK50	M10	119	100	18	32	M24
82.214.5106	SK50	M10	169	150	18	36.5	M24
82.214.5122	SK50	M12	69	50	21	24	M24
82.214.5124	SK50	M12	119	100	21	33	M24
82.214.5126	SK50	M12	169	150	21	40	M24
82.214.5162	SK50	M16	69	50	29	34	M24
82.214.5164	SK50	M16	119	100	29	36	M24
82.214.5166	SK50	M16	169	150	29	42.5	M24

> 82.216 Phantom

- NL Opschroef opname, BT volgens MAS 403-BT AD/B
 FR Mandrin pour fraises à queue filetée, BT selon MAS 403-BT AD/B
 ES Portafresas con mango roscado, BT según MAS 403-BT AD/B
 DE Einschraubfräseraufnahme, BT nach MAS 403-BT AD/B



NIEUW NOUVEAU NUEVO NEU



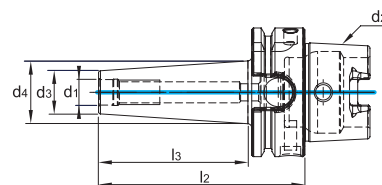
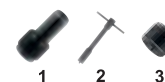
Ref.	d2	d1	l2	l3	d3	d4	M
82.216.4061	BT40	M06	52	25	10	13	M16
82.216.4062	BT40	M06	77	50	10	20	M16
82.216.4063	BT40	M06	102	75	10	23	M16
82.216.4081	BT40	M08	52	25	13	15	M16
82.216.4082	BT40	M08	77	50	13	23	M16
82.216.4083	BT40	M08	102	75	13	23	M16
82.216.4084	BT40	M08	127	100	13	25	M16
82.216.4101	BT40	M10	52	25	18	20	M16
82.216.4102	BT40	M10	77	50	18	23	M16
82.216.4103	BT40	M10	102	75	18	28	M16
82.216.4104	BT40	M10	127	100	18	32	M16
82.216.4121	BT40	M12	52	25	21	24	M16
82.216.4122	BT40	M12	77	50	21	24	M16
82.216.4123	BT40	M12	102	75	21	31	M16
82.216.4124	BT40	M12	127	100	21	33	M16

82.216 Phantom

Ref.	d2	d1	l2	l3	d3	d4	M
82.216.4125	BT40	M12	152	125	21	36	M16
82.216.4161	BT40	M16	52	25	29	29	M16
82.216.4162	BT40	M16	77	50	29	34	M16
82.216.4163	BT40	M16	102	75	29	34	M16
82.216.4164	BT40	M16	127	100	29	36	M16
82.216.4165	BT40	M16	152	125	29	40	M16
82.216.4166	BT40	M16	177	150	29	42.5	M16
82.216.5082	BT50	M08	88	50	13	23	M24
82.216.5084	BT50	M08	138	100	13	25	M24
82.216.5086	BT50	M08	188	150	13	30	M24
82.216.5102	BT50	M10	88	50	18	23	M24
82.216.5104	BT50	M10	138	100	18	32	M24
82.216.5106	BT50	M10	188	150	18	36.5	M24
82.216.5122	BT50	M12	88	50	21	24	M24
82.216.5124	BT50	M12	138	100	21	33	M24
82.216.5126	BT50	M12	188	150	21	40	M24
82.216.5162	BT50	M16	88	50	29	34	M24
82.216.5164	BT50	M16	138	100	29	36	M24
82.216.5166	BT50	M16	188	150	29	42.5	M24

> 82.217 Phantom

- NL Opschroef opname, HSK-A volgens DIN 69893
- FR Mandrin pour fraises à queue fileté, HSK-A selon DIN 69893
- ES Portafresas con mango roscado, HSK-A según DIN 69893
- DE Einschraubfräseraufnahme, HSK-A nach DIN 69893



NIEUW NOUVEAU NUEVO NEU

Ref.	d2	d1	l2	l3	d3	d4	M	1	2	3
82.217.6061	HSK63A	M06	51	25	10	13	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6081	HSK63A	M08	51	25	13	15	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6082	HSK63A	M08	76	50	13	23	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6083	HSK63A	M08	101	75	13	23	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6084	HSK63A	M08	126	100	13	25	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6102	HSK63A	M10	76	50	18	23	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6103	HSK63A	M10	101	75	18	28	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6104	HSK63A	M10	126	100	18	32	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6122	HSK63A	M12	76	50	21	24	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6123	HSK63A	M12	101	75	21	31	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6124	HSK63A	M12	126	100	21	33	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6162	HSK63A	M16	76	50	29	34	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6163	HSK63A	M16	101	75	29	34	M18X1	84.790.1800	84.791.1800	84.789.1800
82.217.6164	HSK63A	M16	126	100	29	36	M18X1	84.790.1800	84.791.1800	84.789.1800

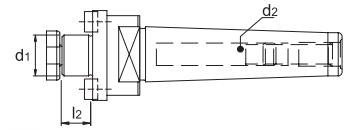


> 82.251 INTERNATIONAL TOOLS

- NL ECO PRO Opsteekfreeshouder voor frezen met dwarsspiebaan, MK volgens DIN 228-A
 FR Mandrin porte-fraises pour fraises avec tenons ECO PRO, CM selon DIN 228-A
 ES Portafrasa para fresas con chavetas frontales ECO PRO, CM según DIN 228-A
 DE ECO PRO Aufsteckfräserdorne für Fräser mit Quernut, MK nach DIN 228-A



Ref.	d2	d1	l2	M	1
82.251.0216	MK 2	16	17	M10	82.452.0800
82.251.0222	MK 2	22	19	M10	82.452.1000
82.251.0316	MK 3	16	17	M12	82.452.0800
82.251.0322	MK 3	22	19	M12	82.452.1000
82.251.0416	MK 4	16	17	M16	82.452.0800
82.251.0422	MK 4	22	19	M16	82.452.1000
82.251.0427	MK 4	27	21	M16	82.452.1200



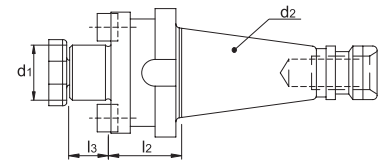
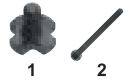
NIEUW NOUVEAU NUEVO NEU

> 82.253 Phantom

- NL Opsteekfreeshouder voor frezen met dwarsspiebaan, SK volgens DIN 2080
 FR Mandrin porte-fraises pour fraises avec tenons, SA selon DIN 2080
 ES Portafrasa para fresas con chavetas frontales, SK según DIN 2080
 DE Aufsteckfräserdorne für Fräser mit Quernut, SK nach DIN 2080



Ref.	d2	d1	l2	l3	M	1	2
82.253.4161	SK40	16	30	17	M16	82.450.0800	82.460.0800
82.253.4221	SK40	22	30	19	M16	82.450.1000	82.460.1000
82.253.4271	SK40	27	30	21	M16	82.450.1200	82.460.1200
82.253.4321	SK40	32	30	24	M16	82.450.1600	82.460.1600
82.253.4401	SK40	40	30	27	M16	82.450.2000	82.460.2000
82.253.5221	SK50	22	35	19	M24	82.450.1000	82.460.1000
82.253.5271	SK50	27	35	21	M24	82.450.1200	82.460.1200
82.253.5321	SK50	32	40	24	M24	82.450.1600	82.460.1600
82.253.5401	SK50	40	33	27	M24	82.450.2000	82.460.2000



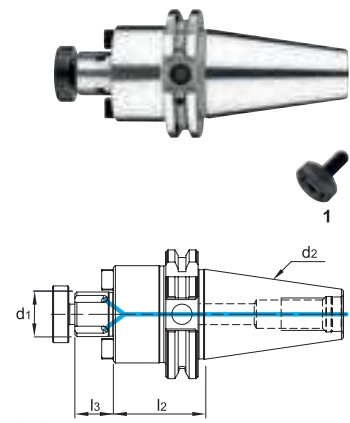
NIEUW NOUVEAU NUEVO NEU

> **82.264 Phantom**

- NL Opsteekfreeshouder voor frezen met dwarsspiebaan, met SK-opname volgens DIN 69871-AD/B
- FR Mandrin porte-fraises pour fraises avec tenons, à queue cône SA selon DIN 69871-AD/B
- ES Portafresa para fresas con chavetas frontales, con sujeción SK según DIN 69871-AD/B
- DE Aufsteckfräserdorne für Fräser mit Quernut, mit SK-Aufnahme nach DIN 69871-AD/B

DIN 6537
AD/B
SK
AT3
0,005
G6,3 15.000 RPM

Ref.	d2	d1	l2	l3	M	1
82.264.4161	SK40	16	45	17	M16	82.452.0800
82.264.4162	SK40	16	100	17	M16	82.452.0800
82.264.4166	SK40	16	160	17	M16	82.452.0800
82.264.4221	SK40	22	45	19	M16	82.452.1000
82.264.4222	SK40	22	100	19	M16	82.452.1000
82.264.4226	SK40	22	160	19	M16	82.452.1000
82.264.4271	SK40	27	50	21	M16	82.452.1200
82.264.4272	SK40	27	100	21	M16	82.452.1200
82.264.4276	SK40	27	160	21	M16	82.452.1200
82.264.4321	SK40	32	55	24	M16	82.452.1600
82.264.4322	SK40	32	100	24	M16	82.452.1600
82.264.4326	SK40	32	160	24	M16	82.452.1600
82.264.4401	SK40	40	55	27	M16	82.452.2000
82.264.5161	SK50	16	45	17	M24	82.452.0800
82.264.5162	SK50	16	100	17	M24	82.452.0800
82.264.5166	SK50	16	160	17	M24	82.452.0800
82.264.5221	SK50	22	45	19	M24	82.452.1000
82.264.5222	SK50	22	100	19	M24	82.452.1000
82.264.5226	SK50	22	160	19	M24	82.452.1000
82.264.5271	SK50	27	45	21	M24	82.452.1200
82.264.5272	SK50	27	100	21	M24	82.452.1200
82.264.5276	SK50	27	160	21	M24	82.452.1200
82.264.5321	SK50	32	50	24	M24	82.452.1600
82.264.5322	SK50	32	100	24	M24	82.452.1600
82.264.5326	SK50	32	160	24	M24	82.452.1600
82.264.5401	SK50	40	55	27	M24	82.452.2000
82.264.5402	SK50	40	100	27	M24	82.452.2000
82.264.5406	SK50	40	160	27	M24	82.452.2000



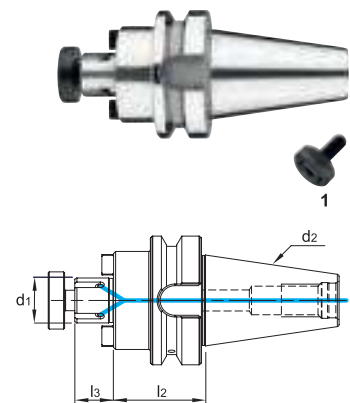
NIEUW NOUVEAU NUEVO NEU

> **82.266 Phantom**

- NL Opsteekfreeshouder voor frezen met dwarsspiebaan, BT volgens MAS 403-BT AD/B
- FR Mandrin porte-fraises pour fraises avec tenons, BT selon MAS 403-BT AD/B
- ES Portafresa para fresas con chavetas frontales, BT según MAS 403-BT AD/B
- DE Aufsteckfräserdorne für Fräser mit Quernut, BT nach MAS 403-BT AD/B

DIN 6537
AD/B
MAS-BT
AT3
0,005
G6,3 15.000 RPM

Ref.	d2	d1	l2	l3	M	1
82.266.4161	BT40	16	45	17	M16	82.452.0800
82.266.4162	BT40	16	100	17	M16	82.452.0800
82.266.4166	BT40	16	160	17	M16	82.452.0800
82.266.4221	BT40	22	45	19	M16	82.452.1000
82.266.4222	BT40	22	100	19	M16	82.452.1000
82.266.4226	BT40	22	160	19	M16	82.452.1000
82.266.4271	BT40	27	45	21	M16	82.452.1200
82.266.4272	BT40	27	100	21	M16	82.452.1200
82.266.4276	BT40	27	160	21	M16	82.452.1200
82.266.4321	BT40	32	50	24	M16	82.452.1600
82.266.4322	BT40	32	100	24	M16	82.452.1600
82.266.4326	BT40	32	160	24	M16	82.452.1600



NIEUW NOUVEAU NUEVO NEU



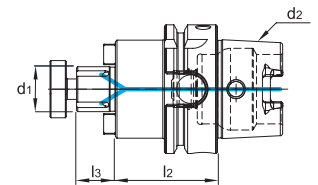


82.266 Phantom

Ref.	d2	d1	l2	l3	M	1
82.266.4401	BT40	40	55	27	M16	82.452.2000
82.266.4402	BT40	40	100	27	M16	82.452.2000
82.266.4406	BT40	40	160	27	M16	82.452.2000
82.266.5161	BT50	16	60	17	M24	82.452.0800
82.266.5162	BT50	16	100	17	M24	82.452.0800
82.266.5166	BT50	16	160	17	M24	82.452.0800
82.266.5221	BT50	22	60	19	M24	82.452.1000
82.266.5222	BT50	22	100	19	M24	82.452.1000
82.266.5226	BT50	22	160	19	M24	82.452.1000
82.266.5271	BT50	27	60	21	M24	82.452.1200
82.266.5272	BT50	27	100	21	M24	82.452.1200
82.266.5276	BT50	27	160	21	M24	82.452.1200
82.266.5321	BT50	32	60	24	M24	82.452.1600
82.266.5322	BT50	32	100	24	M24	82.452.1600
82.266.5326	BT50	32	160	24	M24	82.452.1600
82.266.5401	BT50	40	60	27	M24	82.452.2000
82.266.5402	BT50	40	100	27	M24	82.452.2000

> 82.267 Phantom

- NL **Opsteekfreeshouder voor frezen met dwarsspiebaan, HSK-A volgens DIN 69893**
 FR **Mandrin porte-fraises pour fraises avec tenons, HSK-A selon DIN 69893**
 ES **Portafresa para fresas con chavetas frontales, HSK-A según DIN 69893**
 DE **Aufsteckfräserdorne für Fräser mit Quernut, HSK-A nach DIN 69893**



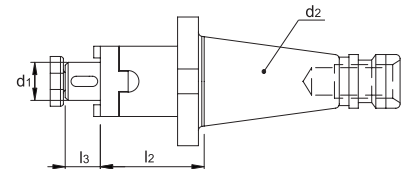
NIEUW / NOUVEAU / NUEVO / NEU



Ref.	d2	d1	l2	l3	M	1	2	3	4
82.267.6161	HSK63A	16	45	17	M18X1	82.452.0800	84.790.1800	84.791.1800	84.789.1800
82.267.6162	HSK63A	16	100	17	M18X1	82.452.0800	84.790.1800	84.791.1800	84.789.1800
82.267.6166	HSK63A	16	160	17	M18X1	82.452.0800	84.790.1800	84.791.1800	84.789.1800
82.267.6221	HSK63A	22	50	19	M18X1	82.452.1000	84.790.1800	84.791.1800	84.789.1800
82.267.6222	HSK63A	22	100	19	M18X1	82.452.1000	84.790.1800	84.791.1800	84.789.1800
82.267.6226	HSK63A	22	160	19	M18X1	82.452.1000	84.790.1800	84.791.1800	84.789.1800
82.267.6271	HSK63A	27	55	21	M18X1	82.452.1200	84.790.1800	84.791.1800	84.789.1800
82.267.6272	HSK63A	27	100	21	M18X1	82.452.1200	84.790.1800	84.791.1800	84.789.1800
82.267.6276	HSK63A	27	160	21	M18X1	82.452.1200	84.790.1800	84.791.1800	84.789.1800
82.267.6321	HSK63A	32	60	24	M18X1	82.452.1600	84.790.1800	84.791.1800	84.789.1800
82.267.6401	HSK63A	40	65	27	M18X1	82.452.2000	84.790.1800	84.791.1800	84.789.1800

> 82.323 Phantom

- NL **Combi-Opsteekfreeshouder voor frezen met langs- en dwarsspiebaan, SK volgens DIN 2080**
 FR **Mandrin porte-fraises combinés pour fraises avec rainure de clavette et tenons, SA selon DIN 2080**
 ES **Portafresa combinado para fresas con ranura longitudinal y transversal, SK según DIN 2080**
 DE **Kombi-Aufsteckfräsdorn für Fräser mit Längs- und Quernut, SK nach DIN 2080**



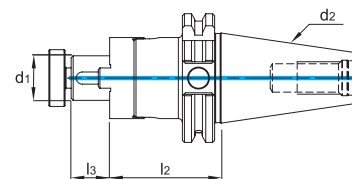
Ref.	d2	d1	l2	l3	M	1	2	3
82.323.3016	SK30	16	35	17	M12	82.450.0800	82.460.0800	82.470.1600
82.323.3022	SK30	22	35	19	M12	82.450.1000	82.460.1000	82.470.2200
82.323.3027	SK30	27	35	21	M12	82.450.1200	82.460.1200	82.470.2700
82.323.3032	SK30	32	50	24	M12	82.450.1600	82.460.1600	82.470.3200
82.323.4016	SK40	16	52	17	M16	82.450.0800	82.460.0800	82.470.1600
82.323.4022	SK40	22	52	19	M16	82.450.1000	82.460.1000	82.470.2200

82.323 Phantom

Ref.	d2	d1	l2	l3	M	1	2	3
82.323.4027	SK40	27	52	21	M16	82.450.1200	82.460.1200	82.470.2700
82.323.4032	SK40	32	52	24	M16	82.450.1600	82.460.1600	82.470.3200
82.323.4040	SK40	40	52	27	M16	82.450.2000	82.460.2000	82.470.4000
82.323.5016	SK50	16	55	17	M24	82.450.0800	82.460.0800	82.470.1600
82.323.5022	SK50	22	55	19	M24	82.450.1000	82.460.1000	82.470.2200
82.323.5027	SK50	27	55	21	M24	82.450.1200	82.460.1200	82.470.2700
82.323.5032	SK50	32	55	24	M24	82.450.1600	82.460.1600	82.470.3200
82.323.5040	SK50	40	55	27	M24	82.450.2000	82.460.2000	82.470.4000

» 82.324 Phantom

- NL **Combi-Opsteekfreeshouder voor frezen met langs- en dwarsspiebaan, SK volgens DIN 69871**
- FR **Mandrin porte-fraises combinés pour fraises avec rainure de clavette et tenons, SA selon DIN 69871**
- ES **Portafresa combinado para fresas con ranura longitudinal y transversal, SK según DIN 69871**
- DE **Kombi-Aufsteckfräsdorn für Fräser mit Längs- und Quernut, SK nach DIN 69871**



NIEUW / NOUVEAU / NUEVO / NEU

DIN 6358
AD
SK
AT3
0,005
G6.3 15.000 RPM

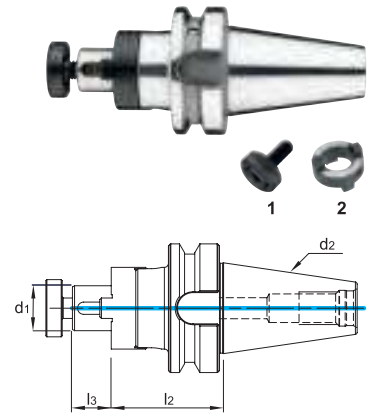
Ref.	d2	d1	l2	l3	M	1	2
82.324.4161	SK40	16	55	17	M16	82.452.0800	82.470.1600
82.324.4162	SK40	16	100	17	M16	82.452.0800	82.470.1600
82.324.4166	SK40	16	160	17	M16	82.452.0800	82.470.1600
82.324.4221	SK40	22	55	19	M16	82.452.1000	82.470.2200
82.324.4222	SK40	22	100	19	M16	82.452.1000	82.470.2200
82.324.4226	SK40	22	160	19	M16	82.452.1000	82.470.2200
82.324.4271	SK40	27	55	21	M16	82.452.1200	82.470.2700
82.324.4272	SK40	27	100	21	M16	82.452.1200	82.470.2700
82.324.4276	SK40	27	160	21	M16	82.452.1200	82.470.2700
82.324.4321	SK40	32	60	24	M16	82.452.1600	82.470.3200
82.324.4322	SK40	32	100	24	M16	82.452.1600	82.470.3200
82.324.4326	SK40	32	160	24	M16	82.452.1600	82.470.3200
82.324.4401	SK40	40	60	27	M16	82.452.2000	82.470.4000
82.324.4402	SK40	40	100	27	M16	82.452.2000	82.470.4000
82.324.4406	SK40	40	160	27	M16	82.452.2000	82.470.4000
82.324.5161	SK50	16	55	17	M24	82.452.0800	82.470.1600
82.324.5162	SK50	16	100	17	M24	82.452.0800	82.470.1600
82.324.5166	SK50	16	160	17	M24	82.452.0800	82.470.1600
82.324.5221	SK50	22	55	19	M24	82.452.1000	82.470.2200
82.324.5222	SK50	22	100	19	M24	82.452.1000	82.470.2200
82.324.5226	SK50	22	160	19	M24	82.452.1000	82.470.2200
82.324.5271	SK50	27	55	21	M24	82.452.1200	82.470.2700
82.324.5272	SK50	27	100	21	M24	82.452.1200	82.470.2700
82.324.5276	SK50	27	160	21	M24	82.452.1200	82.470.2700
82.324.5321	SK50	32	55	24	M24	82.452.1600	82.470.3200
82.324.5322	SK50	32	100	24	M24	82.452.1600	82.470.3200
82.324.5326	SK50	32	160	24	M24	82.452.1600	82.470.3200
82.324.5401	SK50	40	55	27	M24	82.452.2000	82.470.4000
82.324.5402	SK50	40	100	27	M24	82.452.2000	82.470.4000
82.324.5406	SK50	40	160	27	M24	82.452.2000	82.470.4000





> 82.326 Phantom

- NL Combi-Opsteekfreeshouder voor frezen met langs- en dwarsspiebaan, BT volgens MAS 403 BT
 FR Mandrin porte-fraises combinés pour fraises avec rainure de clavette et tenons, BT selon MAS 403 BT
 ES Portafresa combinado para fresas con ranura longitudinal y transversal, BT según MAS 403 BT
 DE Kombi-Aufsteckfräsdorn für Fräser mit Längs- und Quernut, BT nach MAS 403 BT



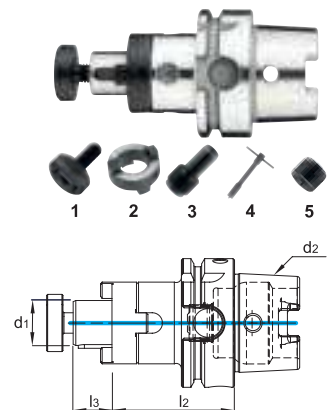
NIEUW / NOUVEAU / NUEVO / NEU

DIN 6358	AD	MAS-BT	AT3	0,005	G6,3 15.000 RPM
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Ref.	d2	d1	l2	l3	M	1	2
82.326.4161	BT40	16	55	17	M16	82.452.0800	82.470.1600
82.326.4162	BT40	16	100	17	M16	82.452.0800	82.470.1600
82.326.4166	BT40	16	160	17	M16	82.452.0800	82.470.1600
82.326.4221	BT40	22	55	19	M16	82.452.1000	82.470.2200
82.326.4222	BT40	22	100	19	M16	82.452.1000	82.470.2200
82.326.4226	BT40	22	160	19	M16	82.452.1000	82.470.2200
82.326.4271	BT40	27	55	21	M16	82.452.1200	82.470.2700
82.326.4272	BT40	27	100	21	M16	82.452.1200	82.470.2700
82.326.4276	BT40	27	160	21	M16	82.452.1200	82.470.2700
82.326.4321	BT40	32	60	24	M16	82.452.1600	82.470.3200
82.326.4322	BT40	32	100	24	M16	82.452.1600	82.470.3200
82.326.4326	BT40	32	160	24	M16	82.452.1600	82.470.3200
82.326.4401	BT40	40	60	27	M16	82.452.2000	82.470.4000
82.326.5161	BT50	16	70	17	M24	82.452.0800	82.470.1600
82.326.5162	BT50	16	100	17	M24	82.452.0800	82.470.1600
82.326.5166	BT50	16	160	17	M24	82.452.0800	82.470.1600
82.326.5221	BT50	22	70	19	M24	82.452.1000	82.470.2200
82.326.5222	BT50	22	100	19	M24	82.452.1000	82.470.2200
82.326.5226	BT50	22	160	19	M24	82.452.1000	82.470.2200
82.326.5271	BT50	27	70	21	M24	82.452.1200	82.470.2700
82.326.5272	BT50	27	100	21	M24	82.452.1200	82.470.2700
82.326.5276	BT50	27	160	21	M24	82.452.1200	82.470.2700
82.326.5321	BT50	32	70	24	M24	82.452.1600	82.470.3200
82.326.5322	BT50	32	100	24	M24	82.452.1600	82.470.3200
82.326.5326	BT50	32	160	24	M24	82.452.1600	82.470.3200
82.326.5401	BT50	40	70	27	M24	82.452.2000	82.470.4000
82.326.5402	BT50	40	100	27	M24	82.452.2000	82.470.4000
82.326.5406	BT50	40	160	27	M24	82.452.2000	82.470.4000

> 82.327 Phantom

- NL Combi-Opsteekfreeshouder voor frezen met langs- en dwarsspiebaan, HSK-A volgens DIN 69893
 FR Mandrin porte-fraises combinés pour fraises avec rainure de clavette et tenons, HSK-A selon DIN 69893
 ES Portafresa combinado para fresas con ranura longitudinal y transversal, HSK-A según DIN 69893
 DE Kombi-Aufsteckfräsdorn für Fräser mit Längs- und Quernut, HSK-A nach DIN 69893



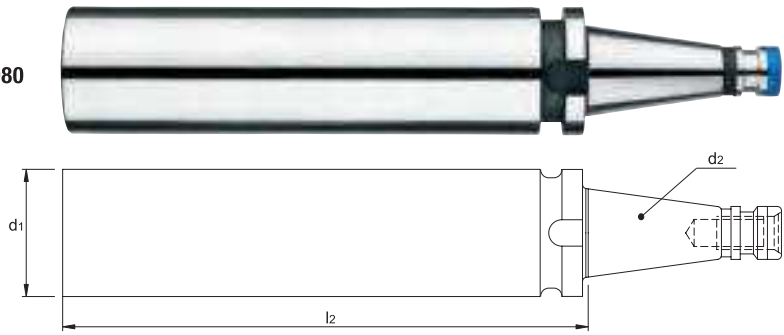
NIEUW / NOUVEAU / NUEVO / NEU

DIN 6358	HSK-A	AT3	0,005	G6,3 20.000 RPM
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Ref.	d2	d1	l2	l3	M	1	2	3	4	5
82.327.6161	HSK63A	16	60	17	M18X1	82.452.0800	82.470.1600	84.790.1800	84.791.1800	84.789.1800
82.327.6162	HSK63A	16	100	17	M18X1	82.452.0800	82.470.1600	84.790.1800	84.791.1800	84.789.1800
82.327.6166	HSK63A	16	160	17	M18X1	82.452.0800	82.470.1600	84.790.1800	84.791.1800	84.789.1800
82.327.6221	HSK63A	22	60	19	M18X1	82.452.1000	82.470.2200	84.790.1800	84.791.1800	84.789.1800
82.327.6222	HSK63A	22	100	19	M18X1	82.452.1000	82.470.2200	84.790.1800	84.791.1800	84.789.1800
82.327.6226	HSK63A	22	160	19	M18X1	82.452.1000	82.470.2200	84.790.1800	84.791.1800	84.789.1800
82.327.6271	HSK63A	27	60	21	M18X1	82.452.1200	82.470.2700	84.790.1800	84.791.1800	84.789.1800
82.327.6272	HSK63A	27	100	21	M18X1	82.452.1200	82.470.2700	84.790.1800	84.791.1800	84.789.1800
82.327.6276	HSK63A	27	160	21	M18X1	82.452.1200	82.470.2700	84.790.1800	84.791.1800	84.789.1800
82.327.6321	HSK63A	32	65	24	M18X1	82.452.1600	82.470.3200	84.790.1800	84.791.1800	84.789.1800
82.327.6401	HSK63A	40	70	27	M18X1	82.452.2000	82.470.4000	84.790.1800	84.791.1800	84.789.1800

> **82.423 Phantom**

NL **Halfbewerkte gereedschapshouder, SK volgens DIN 2080**
 FR **Mandrin porte-outils non fini, SA selon DIN 2080**
 ES **Pieza en bruto, SK según DIN 2080**
 DE **Werkzeughalter-Rohling, SK nach DIN 2080**

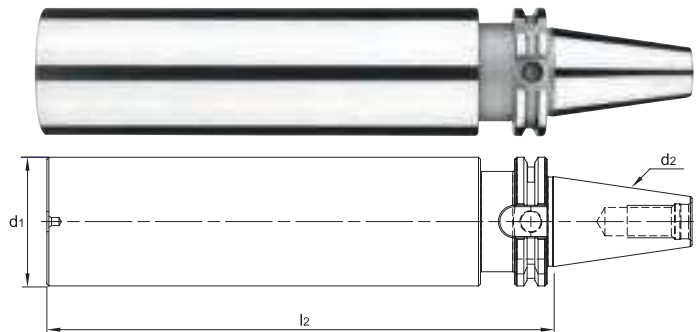


Ref.	d2	d1	l2	M
82.423.4063	SK40	63	250	M16

Ref.	d2	d1	l2	M
82.423.5080	SK50	97	315	M24

> **82.424 Phantom**

NL **Halfbewerkte gereedschapshouder, SK volgens DIN 69871**
 FR **Mandrin porte-outils non fini, SA selon DIN 69871**
 ES **Pieza en bruto, SK según DIN 69871**
 DE **Werkzeughalter-Rohling, SK nach DIN 69871**

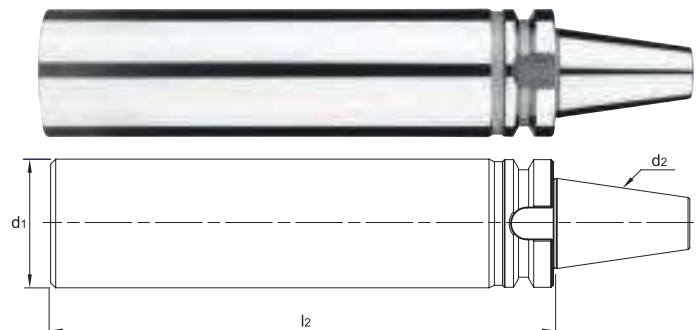


Ref.	d2	d1	l2	M
82.424.4063	SK40	63	250	M16

Ref.	d2	d1	l2	M
82.424.5080	SK50	97	315	M24

> **82.426 Phantom**

NL **Halfbewerkte gereedschapshouder, BT volgens MAS 403 BT**
 FR **Mandrin porte-outils non fini, BT selon MAS 403 BT**
 ES **Pieza en bruto, BT según MAS 403 BT**
 DE **Werkzeughalter-Rohling, BT nach MAS 403 BT**



Ref.	d2	d1	l2	M
82.426.4063	BT40	63	250	M16

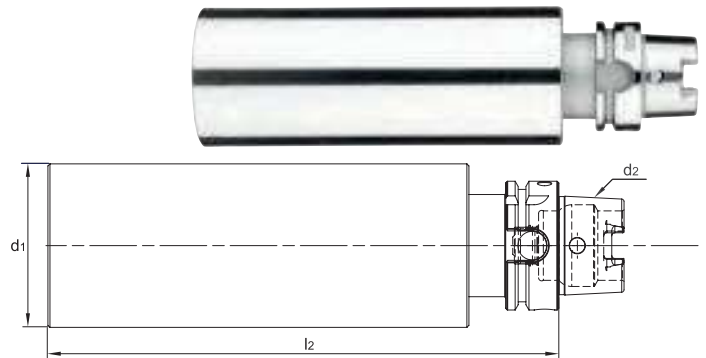
Ref.	d2	d1	l2	M
82.426.5080	BT50	97	315	M24





> 82.427 Phantom

NL **Halfbewerkte gereedschapshouder, HSK-A volgens DIN 69893**
 FR **Mandrin porte-outils non fini, HSK-A selon DIN 69893**
 ES **Pieza en bruto, HSK-A según DIN 69893**
 DE **Werkzeughalter-Rohling, HSK-A nach DIN 69893**



HSK-A
 AT3

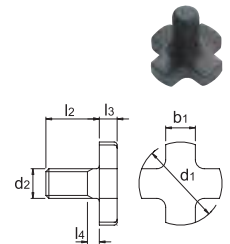
NIEUW / NOUVEAU / NUEVO / NEU

Ref.	d2	d1	l2	M
82.427.6080	HSK63A	80	250	M18X1

Ref.	d2	d1	l2	M

> 82.450 Phantom

NL **Aantrekschroef, type Kruis, voor opsteekhouder**
 FR **Vis de serrage, type Croix, pour arbre de montage**
 ES **Tornillo de fijación, tipo Cruz, para adaptador morse**
 DE **Anzugsschrauben, Typ Kreuz, für Aufsteckhalter**



DIN
 6367

Ref.	M	l4	b1	d1	l3	l2	Type
82.450.0800	M8	3	8	20	6	16	16
82.450.1000	M10	3.6	10	28	7	18	22
82.450.1200	M12	4.5	12	35	8	22	27

Ref.	M	l4	b1	d1	l3	l2	Type
82.450.1600	M16	5.5	16	42	9	26	32
82.450.2000	M20	6	20	52	10	30	40

> 82.452 Phantom

NL **Aantrekschroef, voor opsteekhouder**
 FR **Vis de serrage, pour arbre de montage**
 ES **Tornillo de fijación, para adaptador morse**
 DE **Anzugsschrauben, für Aufsteckhalter**



DIN
 6367

NIEUW / NOUVEAU / NUEVO / NEU

Ref.	M	d1
82.452.0800	M8	20
82.452.1000	M10	28
82.452.1200	M12	35

Ref.	M	d1
82.452.1600	M16	42
82.452.2000	M20	52

> 82.460 Phantom

NL **Spansleutel, voor opsteekhouder**
 FR **Clé pour vis de serrage, pour arbre de montage**
 ES **Llave para tornillo de fijación, para adaptador morse**
 DE **Spannschlüssel, für Aufsteckhalter**



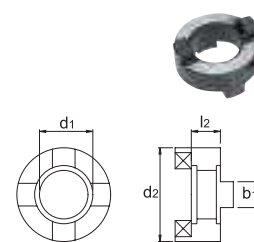
DIN
 6368

Ref.	M	Type	l1
82.460.0800	M8	16	180
82.460.1000	M10	22	200
82.460.1200	M12	27	225

Ref.	M	Type	l1
82.460.1600	M16	32	250
82.460.2000	M20	40	280
82.460.2400	M24	50	315

> **82.470 Phantom**

NL **Meeneemring, voor opsteekhouder**
 FR **Bague de déblocage, pour arbre de montage**
 ES **Arandela de arrastre, para adaptador morse**
 DE **Mitnehmerringe, für Aufsteckhalter**



DIN
6366

Ref.	d1	l2	b1	d2
82.470.1600	16	10	8	32
82.470.2200	22	12	10	40
82.470.2700	27	12	12	48

Ref.	d1	l2	b1	d2
82.470.3200	32	14	14	58
82.470.4000	40	14	16	70

> **82.480 Phantom**

NL **Freesdoornring**
 FR **Entretoise pour mandrins porte-fraises**
 ES **Separador para portafresas**
 DE **Fräsdornring**



DIN
2084-B

Ref.	d1	d2	l1
82.480.1601	16	25	1
82.480.1602	16	25	2
82.480.1603	16	25	3
82.480.1606	16	25	6
82.480.1610	16	25	10
82.480.1620	16	25	20
82.480.1630	16	25	30
82.480.2201	22	33	1
82.480.2202	22	33	2
82.480.2203	22	33	3
82.480.2206	22	33	6
82.480.2210	22	33	10
82.480.2220	22	33	20
82.480.2230	22	33	30
82.480.2701	27	39	1
82.480.2702	27	39	2
82.480.2703	27	39	3
82.480.2706	27	39	6
82.480.2710	27	39	10
82.480.2720	27	39	20
82.480.2730	27	39	30

Ref.	d1	d2	l1
82.480.3201	32	45	1
82.480.3202	32	45	2
82.480.3203	32	45	3
82.480.3206	32	45	6
82.480.3210	32	45	10
82.480.3220	32	45	20
82.480.3230	32	45	30
82.480.4001	40	54	1
82.480.4002	40	54	2
82.480.4003	40	54	3
82.480.4006	40	54	6
82.480.4010	40	54	10
82.480.4020	40	54	20
82.480.4030	40	54	30
82.480.5001	50	67	1
82.480.5002	50	67	2
82.480.5003	50	67	3
82.480.5006	50	67	6
82.480.5010	50	67	10
82.480.5020	50	67	20
82.480.5030	50	67	30



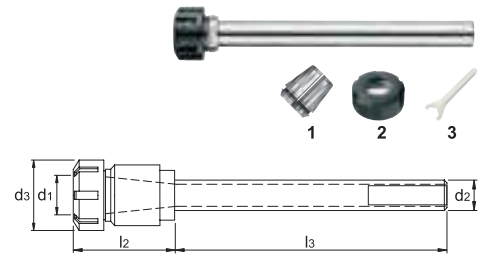


> 82.510 Phantom

NL ER Spantanghouder, cilindrisch
FR Mandrin porte-pinces ER, forme cylindrique
ES Portapinzas ER, cilindrico
DE ER-Spannzangenfutter, Zylinderform



Ref.	d2	Type	Ø mm	l2	l3	d3	1	2	3
82.510.1616	16	ER16	1-10	30	150	32	82.816	82.960.1600	82.990.1600
82.510.2025	20	ER25	1-16	40	50	42	82.825	82.960.2500	82.990.2500
82.510.3232	32	ER32	2-20	35	150	50	82.832	82.960.3200	82.990.3200



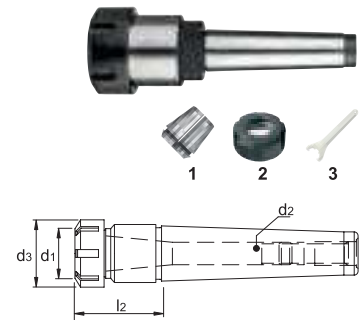
NIEUW / NOUVEAU / NUEVO / NEU

> 82.511 INTERNATIONAL TOOLS

NL ECO PRO ER Spantanghouder, MK volgens DIN 228-A
FR ECO PRO Mandrin porte-pinces ER, CM selon DIN 228-A
ES ECO PRO Portapinzas ER, CM según DIN 228-A
DE ECO PRO ER-Spannzangenfutter, MK nach DIN 228-A



Ref.	d2	Type	Ø mm	l2	d3	M	1	2	3
82.511.0225	2	ER25	1-16	50	42	M10	82.825	82.960.2500	82.990.2500
82.511.0332	3	ER32	2-20	70	50	M12	82.832	82.960.3200	82.990.3200
82.511.0432	4	ER32	2-20	65	50	M16	82.832	82.960.3200	82.990.3200

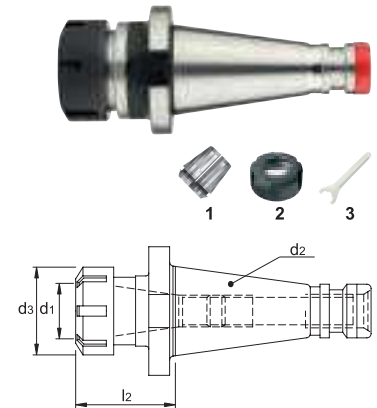


> 82.513 Phantom

NL ER Spantanghouder, SK volgens DIN 2080
FR Mandrin porte-pinces ER, SA selon DIN 2080
ES Portapinzas ER, SK según DIN 2080
DE ER-Spannzangenfutter, SK nach DIN 2080

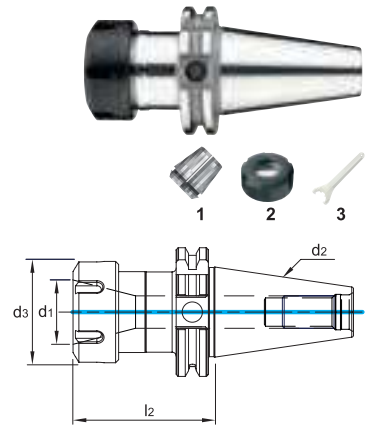


Ref.	d2	Type	Ø mm	l2	d3	M	1	2	3
82.513.3065	SK30	ER32	2-20	50	50	M12	82.832	82.960.3200	82.990.3200
82.513.4053	SK40	ER25	1-16	50	42	M16	82.825	82.960.2500	82.990.2500
82.513.4063	SK40	ER32	2-20	50	50	M16	82.832	82.960.3200	82.990.3200
82.513.4071	SK40	ER40	3-26	80	63	M16	82.840	82.960.4000	82.990.4000
82.513.5061	SK50	ER32	2-20	63	50	M24	82.832	82.960.3200	82.990.3200
82.513.5071	SK50	ER40	3-26	63	63	M24	82.840	82.960.4000	82.990.4000



> **82.514 Phantom**

NL ER Spantanghouder, SK volgens DIN 69871
 FR Mandrin porte-pinces ER, SA selon DIN 69871
 ES Portapinzas ER, SK según DIN 69871
 DE ER-Spannzangenfutter, SK nach DIN 69871



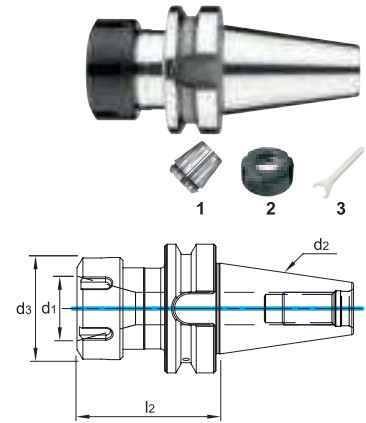
NIEUW / NOUVEAU / NUEVO / NEU

ER AD SK AT3 $\pm 0,005$ G6,3 15.000 RPM

Ref.	d2	Type	Ø mm	l2	d3	M	1	2	3
82.514.4161	SK40	ER16	1-10	70	32	M16	82.816	82.960.1600	82.990.1600
82.514.4162	SK40	ER16	1-10	100	32	M16	82.816	82.960.1600	82.990.1600
82.514.4166	SK40	ER16	1-10	160	32	M16	82.816	82.960.1600	82.990.1600
82.514.4251	SK40	ER25	1-16	70	42	M16	82.825	82.960.2500	82.990.2500
82.514.4252	SK40	ER25	1-16	100	42	M16	82.825	82.960.2500	82.990.2500
82.514.4256	SK40	ER25	1-16	160	42	M16	82.825	82.960.2500	82.990.2500
82.514.4321	SK40	ER32	2-20	70	50	M16	82.832	82.960.3200	82.990.3200
82.514.4322	SK40	ER32	2-20	100	50	M16	82.832	82.960.3200	82.990.3200
82.514.4326	SK40	ER32	2-20	160	50	M16	82.832	82.960.3200	82.990.3200
82.514.4401	SK40	ER40	3-26	70	63	M16	82.840	82.960.4000	82.990.4000
82.514.4402	SK40	ER40	3-26	100	63	M16	82.840	82.960.4000	82.990.4000
82.514.4406	SK40	ER40	3-26	160	63	M16	82.840	82.960.4000	82.990.4000
82.514.5162	SK50	ER16	1-10	100	32	M24	82.816	82.960.1600	82.990.1600
82.514.5166	SK50	ER16	1-10	160	32	M24	82.816	82.960.1600	82.990.1600
82.514.5251	SK50	ER25	1-16	70	42	M24	82.825	82.960.2500	82.990.2500
82.514.5252	SK50	ER25	1-16	100	42	M24	82.825	82.960.2500	82.990.2500
82.514.5256	SK50	ER25	1-16	160	42	M24	82.825	82.960.2500	82.990.2500
82.514.5321	SK50	ER32	2-20	70	50	M24	82.832	82.960.3200	82.990.3200
82.514.5322	SK50	ER32	2-20	100	50	M24	82.832	82.960.3200	82.990.3200
82.514.5326	SK50	ER32	2-20	160	50	M24	82.832	82.960.3200	82.990.3200
82.514.5401	SK50	ER40	3-26	80	63	M24	82.840	82.960.4000	82.990.4000
82.514.5402	SK50	ER40	3-26	100	63	M24	82.840	82.960.4000	82.990.4000
82.514.5406	SK50	ER40	3-26	160	63	M24	82.840	82.960.4000	82.990.4000

> **82.516 Phantom**

NL ER Spantanghouder, BT volgens MAS 403 BT
 FR Mandrin porte-pinces ER, BT selon MAS 403 BT
 ES Portapinzas ER, BT según MAS 403 BT
 DE ER-Spannzangenfutter, BT nach MAS 403 BT



NIEUW / NOUVEAU / NUEVO / NEU

ER AD MAS-BT AT3 $\pm 0,005$ G6,3 15.000 RPM

Ref.	d2	Type	Ø mm	l2	d3	M	1	2	3
82.516.4161	BT40	ER16	1-10	70	32	M16	82.816	82.960.1600	82.990.1600
82.516.4162	BT40	ER16	1-10	100	32	M16	82.816	82.960.1600	82.990.1600
82.516.4166	BT40	ER16	1-10	160	32	M16	82.816	82.960.1600	82.990.1600
82.516.4251	BT40	ER25	1-16	70	42	M16	82.825	82.960.2500	82.990.2500
82.516.4252	BT40	ER25	1-16	100	42	M16	82.825	82.960.2500	82.990.2500
82.516.4256	BT40	ER25	1-16	160	42	M16	82.825	82.960.2500	82.990.2500
82.516.4321	BT40	ER32	2-20	70	50	M16	82.832	82.960.3200	82.990.3200
82.516.4322	BT40	ER32	2-20	100	50	M16	82.832	82.960.3200	82.990.3200
82.516.4326	BT40	ER32	2-20	160	50	M16	82.832	82.960.3200	82.990.3200
82.516.4401	BT40	ER40	3-26	70	63	M16	82.840	82.960.4000	82.990.4000
82.516.4402	BT40	ER40	3-26	100	63	M16	82.840	82.960.4000	82.990.4000
82.516.4406	BT40	ER40	3-26	160	63	M16	82.840	82.960.4000	82.990.4000
82.516.5162	BT50	ER16	1-10	100	32	M24	82.816	82.960.1600	82.990.1600
82.516.5166	BT50	ER16	1-10	160	32	M24	82.816	82.960.1600	82.990.1600
82.516.5251	BT50	ER25	1-16	80	42	M24	82.825	82.960.2500	82.990.2500
82.516.5252	BT50	ER25	1-16	100	42	M24	82.825	82.960.2500	82.990.2500

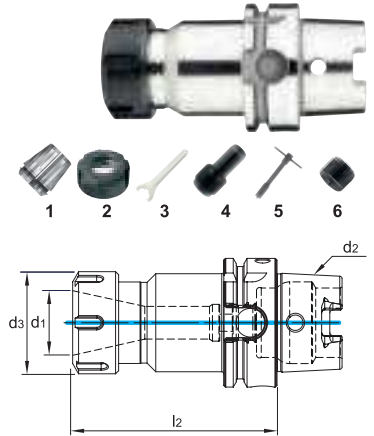


> 82.516 Phantom

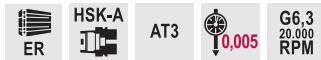
Ref.	d2	Type	Ø mm	l2	d3	M	1	2	3
82.516.5256	BT50	ER25	1-16	160	42	M24	82.825	82.960.2500	82.990.2500
82.516.5321	BT50	ER32	2-20	80	50	M24	82.832	82.960.3200	82.990.3200
82.516.5322	BT50	ER32	2-20	100	50	M24	82.832	82.960.3200	82.990.3200
82.516.5326	BT50	ER32	2-20	160	50	M24	82.832	82.960.3200	82.990.3200
82.516.5401	BT50	ER40	3-26	80	63	M24	82.840	82.960.4000	82.990.4000
82.516.5402	BT50	ER40	3-26	100	63	M24	82.840	82.960.4000	82.990.4000
82.516.5406	BT50	ER40	3-26	160	63	M24	82.840	82.960.4000	82.990.4000

> 82.517 Phantom

NL ER Spantanghouder, HSK-A volgens DIN 69893
 FR Mandrin porte-pinces ER, HSK-A selon DIN 69893
 ES Portapinzas ER, HSK-A según DIN 69893
 DE ER-Spannzangenfutter, HSK-A nach DIN 69893



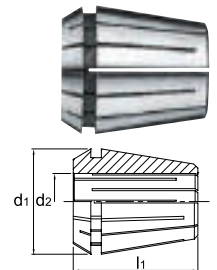
NIEUW / NOUVEAU / NUEVO / NEU



Ref.	d2	Type	Ø mm	l2	d3	1	2	3	4	5	6
82.517.6252	HSK63A	ER25	1-16	100	42	82.825	82.960.2500	82.990.2500	84.790.1800	84.791.1800	84.789.1800
82.517.6256	HSK63A	ER25	1-16	160	42	82.825	82.960.2500	82.990.2500	84.790.1800	84.791.1800	84.789.1800
82.517.6322	HSK63A	ER32	2-20	100	50	82.832	82.960.3200	82.990.3200	84.790.1800	84.791.1800	84.789.1800
82.517.6326	HSK63A	ER32	2-20	160	50	82.832	82.960.3200	82.990.3200	84.790.1800	84.791.1800	84.789.1800
82.517.6404	HSK63A	ER40	3-26	120	63	82.840	82.960.4000	82.990.4000	84.790.1800	84.791.1800	84.789.1800
82.517.6406	HSK63A	ER40	3-26	160	63	82.840	82.960.4000	82.990.4000	84.790.1800	84.791.1800	84.789.1800

> 82.811 Phantom

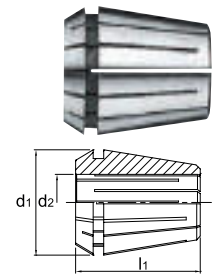
NL Spantang ER 11 4008E, standaard, 10 µm, DIN 6499-B
 FR Pince ER 11 4008E, standard, 10 µm, DIN 6499-B
 ES Pinza ER 11 4008E, estándar, 10 µm, DIN 6499-B
 DE Spannzange ER 11 4008E, standard, 10 µm, DIN 6499-B



Ref.	d2	Ø mm	d1	l1	Ref.	d2	Ø mm	d1	l1
82.811.0100	1	0,5-1	11,6	18	82.811.0450	4,5	4-4,5	11,6	18
82.811.0150	1,5	1-1,5	11,6	18	82.811.0500	5	4,5-5	11,6	18
82.811.0200	2	1,5-2	11,6	18	82.811.0550	5,5	5-5,5	11,6	18
82.811.0250	2,5	2-2,5	11,6	18	82.811.0600	6	5,5-6	11,6	18
82.811.0300	3	2,5-3	11,6	18	82.811.0650	6,5	6-6,5	11,6	18
82.811.0350	3,5	3-3,5	11,6	18	82.811.0700	7	6,5-7	11,6	18
82.811.0400	4	3,5-4	11,6	18					

> **82.816 Phantom**

- NL Spantang ER 16 426E, 10 µm, standaard, DIN 6499-B
- FR Pince ER 16 426E, 10 µm, standard, DIN 6499-B
- ES Pinza ER 16 426E, 10 µm, estándar, DIN 6499-B
- DE Spannzange ER 16 426E, 10 µm, standard, DIN 6499-B



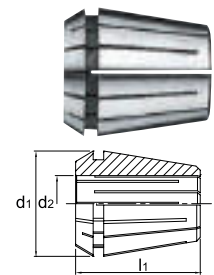
 **DIN 6499-B**

Ref.	d2	Ø mm	d1	l1
82.816.0100	1	0,5-1	17	27
82.816.0150	1.5	1-1,5	17	27
82.816.0200	2	1,5-2	17	27
82.816.0250	2.5	2-2,5	17	27
82.816.0300	3	2-3	17	27
82.816.0400	4	3-4	17	27

Ref.	d2	Ø mm	d1	l1
82.816.0500	5	4-5	17	27
82.816.0600	6	5-6	17	27
82.816.0700	7	6-7	17	27
82.816.0800	8	7-8	17	27
82.816.0900	9	8-9	17	27
82.816.1000	10	9-10	17	27

> **82.820 Phantom**

- NL Spantang ER 20 428E, standaard, 10 µm, DIN 6499-B
- FR Pince ER 20 428E, standard, 10 µm, DIN 6499-B
- ES Pinza ER 20 428E, estándar, 10 µm, DIN 6499-B
- DE Spannzange ER 20 428E, standard, 10 µm, DIN 6499-B



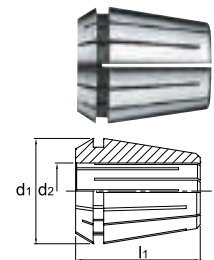
 **DIN 6499-B**

Ref.	d2	Ø mm	d1	l1
82.820.0100	1	0,5-1	21	31
82.820.0150	1.5	1-1,5	21	31
82.820.0200	2	1,5-2	21	31
82.820.0250	2.5	2-2,5	21	31
82.820.0300	3	2-3	21	31
82.820.0400	4	3-4	21	31
82.820.0500	5	4-5	21	31
82.820.0600	6	5-6	21	31

Ref.	d2	Ø mm	d1	l1
82.820.0700	7	6-7	21	31
82.820.0800	8	7-8	21	31
82.820.0900	9	8-9	21	31
82.820.1000	10	9-10	21	31
82.820.1100	11	10-11	21	31
82.820.1200	12	11-12	21	31
82.820.1300	13	12-13	21	31

> **82.825 Phantom**

- NL Spantang ER 25 430E, standaard, 10 µm, DIN 6499-B
- FR Pince ER 25 430E, standard, 10 µm, DIN 6499-B
- ES Pinza ER 25 430E, estándar, 10 µm, DIN 6499-B
- DE Spannzange ER 25 430E, standard, 10 µm, DIN 6499-B



 **DIN 6499-B**

Ref.	d2	Ø mm	d1	l1
82.825.0100	1	0,5-1	26	35
82.825.0150	1.5	1-1,5	26	35
82.825.0200	2	1,5-2	26	35
82.825.0250	2.5	2-2,5	26	35
82.825.0300	3	2-3	26	35
82.825.0400	4	3-4	26	35
82.825.0500	5	4-5	26	35
82.825.0600	6	5-6	26	35
82.825.0700	7	6-7	26	35

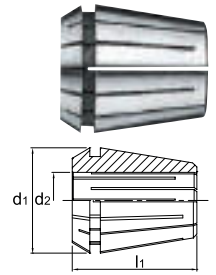
Ref.	d2	Ø mm	d1	l1
82.825.0800	8	7-8	26	35
82.825.0900	9	8-9	26	35
82.825.1000	10	9-10	26	35
82.825.1100	11	10-11	26	35
82.825.1200	12	11-12	26	35
82.825.1300	13	12-13	26	35
82.825.1400	14	13-14	26	35
82.825.1500	15	14-15	26	35
82.825.1600	16	15-16	26	35





> 82.832 Phantom

NL Spantang ER 32 470E, standaard, 10 µm, DIN 6499-B
 FR Pince ER 32 470E, standard, 10 µm, DIN 6499-B
 ES Pinza ER 32 470E, estándar, 10 µm, DIN 6499-B
 DE Spannzange ER 32 470E, standard, 10 µm, DIN 6499-B



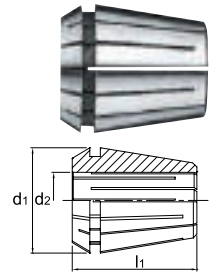
 **DIN**
ER-32 **6499-B**

Ref.	d2	Ø mm	d1	l1
82.832.0200	2	1,5-2	33	40
82.832.0300	3	2-3	33	40
82.832.0400	4	3-4	33	40
82.832.0500	5	4-5	33	40
82.832.0600	6	5-6	33	40
82.832.0700	7	6-7	33	40
82.832.0800	8	7-8	33	40
82.832.0900	9	8-9	33	40
82.832.1000	10	9-10	33	40
82.832.1100	11	10-11	33	40

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

> 82.840 Phantom

NL Spantang ER 40 472E, standaard, 10 µm, DIN 6499-B
 FR Pince ER 40 472E, standard, 10 µm, DIN 6499-B
 ES Pinza ER 40 472E, estándar, 10 µm, DIN 6499-B
 DE Spannzange ER 40 472E, standard, 10 µm, DIN 6499-B



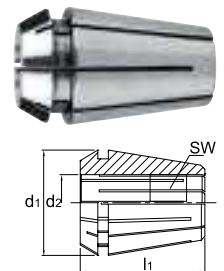
 **DIN**
ER-40 **6499-B**

Ref.	d2	Ø mm	d1	l1
82.840.0300	3	2-3	41	46
82.840.0400	4	3-4	41	46
82.840.0500	5	4-5	41	46
82.840.0600	6	5-6	41	46
82.840.0700	7	6-7	41	46
82.840.0800	8	7-8	41	46
82.840.0900	9	8-9	41	46
82.840.1000	10	9-10	41	46
82.840.1100	11	10-11	41	46
82.840.1200	12	11-12	41	46
82.840.1300	13	12-13	41	46
82.840.1400	14	13-14	41	46

Ref.	d2	Ø mm	d1	l1
82.840.1500	15	14-15	41	46
82.840.1600	16	15-16	41	46
82.840.1700	17	16-17	41	46
82.840.1800	18	17-18	41	46
82.840.1900	19	18-19	41	46
82.840.2000	20	19-20	41	46
82.840.2100	21	20-21	41	46
82.840.2200	22	21-22	41	46
82.840.2300	23	22-23	41	46
82.840.2400	24	23-24	41	46
82.840.2500	25	24-25	41	46
82.840.2600	26	25-26	41	46

> 82.880 Phantom

NL Spantang ER 16G 426G voor tappen
 FR Pince ER 16G 426G pour tarauds
 ES Pinza ER 16G 426G para machos
 DE Spannzange ER 16G 426G für Maschinengewindebohrer



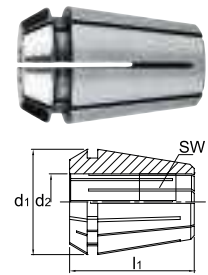
 **DIN**
ER-16

Ref.	d2	sw	d1	l1
82.880.0350	3,5	2,7	17	27
82.880.0400	4	3	17	27
82.880.0450	4,5	3,4	17	27
82.880.0500	5	4	17	27
82.880.0600	6	4,9	17	27

Ref.	d2	sw	d1	l1
82.880.0630	6,3	5	17	27
82.880.0700	7	5,5	17	27
82.880.0800	8	6,2	17	27
82.880.0900	9	7,1	17	27
82.880.1000	10	8	17	27

> **82.885 Phantom**

- NL Spantang ER 25G 430G voor tappen
- FR Pince ER 25G 430G pour tarauds
- ES Pinza ER 25G 430G para machos
- DE Spannzange ER 25G 430G für Maschinengewindebohrer

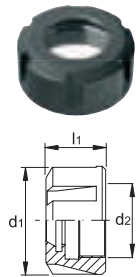


Ref.	d2	sw	d1	l1
82.885.0450	4.5	3.4	26	35
82.885.0500	5	4	26	35
82.885.0600	6	4.9	26	35
82.885.0630	6.3	5	26	35
82.885.0700	7	5.5	26	35

Ref.	d2	sw	d1	l1
82.885.0800	8	6.2	26	35
82.885.0900	9	7	26	35
82.885.1000	10	8	26	35
82.885.1120	11.2	9	26	35

> **82.960 Phantom**

- NL Moer voor Spantanghouder, DIN 6499-D
- FR Ecrou pour Mandrin porte-pinces, DIN 6499-D
- ES Tuerca para Portapinzas, DIN 6499-D
- DE Muttern für Spannzangenfutter, DIN 6499-D

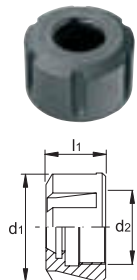


Ref.	Type	d1	M	l1
82.960.1600	ER16	32	M22x1,5	17.5
82.960.2500	ER25	42	M32x1,5	20

Ref.	Type	d1	M	l1
82.960.3200	ER32	50	M40x1,5	22.5
82.960.4000	ER40	63	M50x1,5	25.5

> **82.962 Phantom**

- NL Moer voor Spantanghouder, DIN 6499, voor afdichtring 82.963
- FR Ecrou pour Mandrin porte-pinces, DIN 6499, pour joint 82.963
- ES Tuerca para Portapinzas, DIN 6499, para junta 82.963
- DE Muttern für Spannzangenfutter, DIN 6499, Für Dichtungsringe 82.963



Ref.	Type	d1	M	l1
82.962.1600	ER16	32	M22 x 1,5	23.5
82.962.2500	ER25	42	M32 x 1,5	26

Ref.	Type	d1	M	l1
82.962.3200	ER32	50	M40 x 1,5	28.5
82.962.4000	ER40	63	M50 x 1,5	31.5

> **82.963 Phantom**

- NL Afdichtring voor spantangen, ER, DIN 6499
- FR Joint pour pince, ER, DIN 6499
- ES Junta para pinzas, ER, DIN 6499
- DE Dichtungsringe für Spannzangen, ER, DIN 6499



Ref.	Type	Ø
82.963.1603	ER16	3-2,5
82.963.1604	ER16	4-3,5
82.963.1605	ER16	5-4,5
82.963.1606	ER16	6-5,5
82.963.1607	ER16	7-6,5
82.963.1608	ER16	8-7,5
82.963.1609	ER16	9-8,5
82.963.1610	ER16	10-9,5
82.963.2503	ER25	3-2,5
82.963.2504	ER25	4-3,5
82.963.2505	ER25	5-4,5
82.963.2506	ER25	6-5,5
82.963.2507	ER25	7-6,5
82.963.2508	ER25	8-7,5
82.963.2509	ER25	9-8,5
82.963.2510	ER25	10-9,5

Ref.	Type	Ø
82.963.2511	ER25	11-10,5
82.963.2512	ER25	12-11,5
82.963.2513	ER25	13-12,5
82.963.2514	ER25	14-13,5
82.963.2515	ER25	15-14,5
82.963.2516	ER25	16-15,5
82.963.3203	ER32	3-2,5
82.963.3204	ER32	4-3,5
82.963.3205	ER32	5-4,5
82.963.3206	ER32	6-5,5
82.963.3207	ER32	7-6,5
82.963.3208	ER32	8-7,5
82.963.3209	ER32	9-8,5
82.963.3210	ER32	10-9,5
82.963.3211	ER32	11-10,5
82.963.3212	ER32	12-11,5





> 82.963 Phantom

Ref.	Type	Ø
82.963.3213	ER32	13-12,5
82.963.3214	ER32	14-13,5
82.963.3215	ER32	15-14,5
82.963.3216	ER32	16-15,5
82.963.3217	ER32	17-16,5
82.963.3218	ER32	18-17,5
82.963.3219	ER32	19-18,5
82.963.3220	ER32	20-19,5
82.963.4003	ER40	3-2,5
82.963.4004	ER40	4-3,5
82.963.4005	ER40	5-4,5
82.963.4006	ER40	6-5,5
82.963.4007	ER40	7-6,5
82.963.4008	ER40	8-7,5
82.963.4009	ER40	9-8,5
82.963.4010	ER40	10-9,5

Ref.	Type	Ø
82.963.4011	ER40	11-10,5
82.963.4012	ER40	12-11,5
82.963.4013	ER40	13-12,5
82.963.4014	ER40	14-13,5
82.963.4015	ER40	15-14,5
82.963.4016	ER40	16-15,5
82.963.4017	ER40	17-16,5
82.963.4018	ER40	18-17,5
82.963.4019	ER40	19-18,5
82.963.4020	ER40	20-19,5
82.963.4021	ER40	21-20,5
82.963.4022	ER40	22-21,5
82.963.4023	ER40	23-22,5
82.963.4024	ER40	24-23,5
82.963.4025	ER40	25-24,5
82.963.4026	ER40	26-25,5

> 82.990 Phantom

- NL Sleutel voor Spantangmoer, ER, DIN 6499
 FR Clé pour Ecrou de mandrins à pincés, ER, DIN 6499
 ES Llave para Tuerca para portapinzas, ER, DIN 6499
 DE Schlüssel für Spannzangenmuttern, ER, DIN 6499

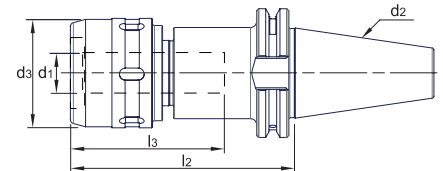
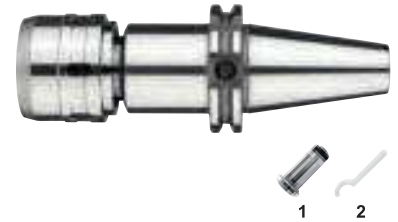


Ref.	Type
82.990.1600	ER16
82.990.2500	ER25

Ref.	Type
82.990.3200	ER32
82.990.4000	ER40

> 83.624 Phantom

- NL Krachtspan opname, SK volgens DIN 69871
 FR Mandrin à grande force de serrage, SA selon DIN 69871
 ES Portaherramientas de gran apriete, SK según DIN 69871
 DE Kraftspannfutter, SK nach DIN 69871



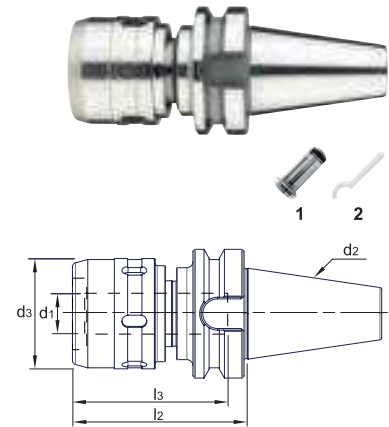
NIEUW / NOUVEAU / NUEVO / NEU

AD	SK	AT3	0,005	G6,3 15.000 RPM
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Ref.	d2	d1	Ø mm	l2	d3	M	1	2
83.624.4202	SK40	20	3-16	105	54	M16	83.691.2xx1	83.629.0200
83.624.4322	SK40	32	6-25	105	72	M16	83.691.3xx1	83.629.0320
83.624.5202	SK50	20	3-16	105	54	M24	83.691.2xx1	83.629.0200
83.624.5322	SK50	32	6-25	105	72	M24	83.691.3xx1	83.629.0320

> **83.626 Phantom**

NL **Krachtspan opname, BT volgens MAS 403 BT**
 FR **Mandrin à grande force de serrage, BT selon MAS 403 BT**
 ES **Portaherramientas de gran apriete, BT según MAS 403 BT**
 DE **Kraftspannfutter, BT nach MAS 403 BT**



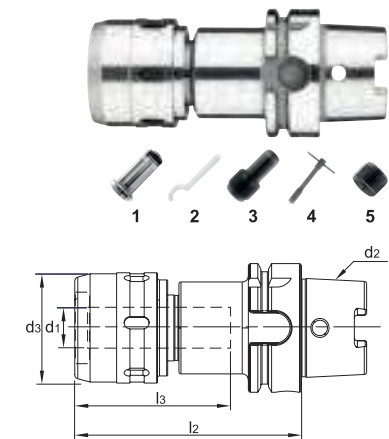
NIEUW / NOUVEAU / NUEVO / NEU

AD MAS-BT AT3 $\pm 0,005$ G6,3 15.000 RPM

Ref.	d2	d1	Ø mm	l2	d3	M	1	2
83.626.4201	BT40	20	3-16	80	54	M16	83.691.2xx1	83.629.0200
83.626.4322	BT40	32	6-25	90	72	M16	83.691.3xx1	83.629.0320
83.626.5202	BT50	20	3-16	105	54	M24	83.691.2xx1	83.629.0200
83.626.5322	BT50	32	6-25	105	72	M24	83.691.3xx1	83.629.0320

> **83.627 Phantom**

NL **Krachtspan opname, HSK-A volgens DIN 69893**
 FR **Mandrin à grande force de serrage, HSK-A selon DIN 69893**
 ES **Portaherramientas de gran apriete, HSK-A según DIN 69893**
 DE **Kraftspannfutter, HSK-A nach DIN 69893**



NIEUW / NOUVEAU / NUEVO / NEU

HSK-A AT3 $\pm 0,005$ G6,3 20.000 RPM

Ref.	d2	d1	Ø mm	l2	d3	M	1	2	3	4	5
83.627.6202	HSK63A	20	3-16	105	54	M18X1	83.691.2xx1	83.629.0200	84.790.1800	84.791.1800	84.789.1800
83.627.6324	HSK63A	32	6-25	130	72	M18X1	83.691.3xx1	83.629.0320	84.790.1800	84.791.1800	84.789.1800

> **83.629 Phantom**

NL **Krachtspan opname, sleutel**
 FR **Clé pour mandrin à grande force de serrage**
 ES **Portaherramientas de gran apriete, llave**
 DE **Kraftspannfutter, Schlüssel**



NIEUW / NOUVEAU / NUEVO / NEU

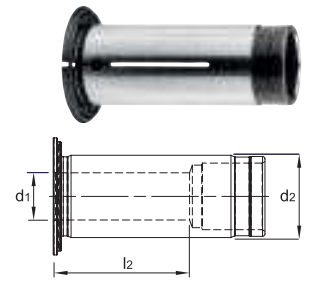
Ref.	Type
83.629.0200	20
83.629.0320	32





> 83.691 Phantom

NL Reduceerhuls, voor krachtspan opname
 FR Douille de réduction, pour mandrins à grande force de serrage
 ES Casquillo de reducción, para portaherramientas de gran apriete
 DE Reduzierhülsen, für Kraftspannfutter



NIEUW / NOUVEAU / NUEVO / NEU

Ref.	d2	d1	l2
83.691.2061	20	6	25
83.691.2081	20	8	30
83.691.2101	20	10	33
83.691.2121	20	12	34
83.691.2141	20	14	34
83.691.2161	20	16	40
83.691.3061	32	6	25
83.691.3081	32	8	25

Ref.	d2	d1	l2
83.691.3101	32	10	33
83.691.3121	32	12	34
83.691.3141	32	14	34
83.691.3161	32	16	40
83.691.3181	32	18	40
83.691.3201	32	20	40
83.691.3251	32	25	42



1 SC



1 HSS(-E)



2



3 SC



3 HSS-E



4



5



6



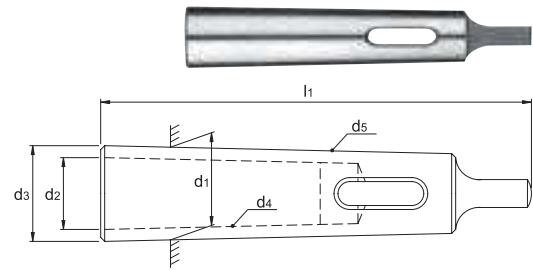
7



8

> 84.100 INTERNATIONAL TOOLS

- NL ECO PRO Boorhuls (Reduceerhuls), MK x MK
- FR Douille (de réduction) ECO PRO, CM x CM
- ES Casquillo (Casquillo de reducción) ECO PRO, CM x CM
- DE ECO PRO Bohrhülse (Reduzierhülse), MK x MK



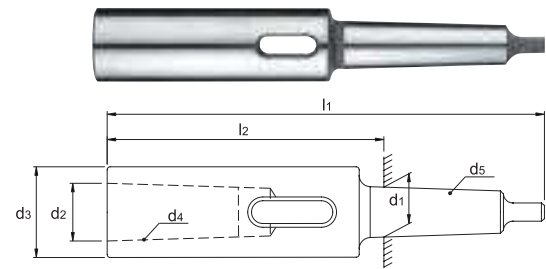
DIN 2185 ECO PRO

Ref.	d5	d4	d1	d2	d3	l1
84.100.0100	MK 1	MK 0	11.8	9.045	13.2	85
84.100.0201	MK 2	MK 1	17.78	12.065	18.6	92
84.100.0301	MK 3	MK 1	23.825	12.065	24.1	99
84.100.0302	MK 3	MK 2	23.825	17.78	24.7	112
84.100.0401	MK 4	MK 1	31.267	12.065	18.6	124
84.100.0402	MK 4	MK 2	31.267	17.78	31.6	124
84.100.0403	MK 4	MK 3	31.267	23.825	32.4	140
84.100.0501	MK 5	MK 1	44.399	12.065	44.7	156

Ref.	d5	d4	d1	d2	d3	l1
84.100.0502	MK 5	MK 2	44.399	17.78	44.7	156
84.100.0503	MK 5	MK 3	44.399	23.825	44.7	156
84.100.0504	MK 5	MK 4	44.399	31.267	45.5	171
84.100.0602	MK 6	MK 2	63.348	17.78	63.8	218
84.100.0603	MK 6	MK 3	63.348	23.825	63.8	218
84.100.0604	MK 6	MK 4	63.348	31.267	63.8	218
84.100.0605	MK 6	MK 5	63.348	44.399	63.8	218

> 84.110 INTERNATIONAL TOOLS

- NL ECO PRO Verlengde Boorhuls, MK x MK
- FR Douille allongée ECO PRO, CM x CM
- ES Casquillo de prolongación ECO PRO, CM x CM
- DE ECO PRO Verlängerte Bohrhülse, MK x MK



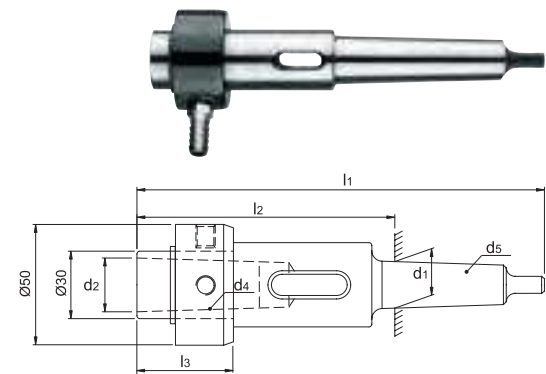
DIN 2187 ECO PRO

Ref.	d5	d4	d1	d2	d3	l1	l2
84.110.0101	MK 1	MK 1	12.065	12.065	20	145	83
84.110.0102	MK 1	MK 2	12.065	17.78	30	160	91
84.110.0103	MK 1	MK 3	12.065	23.825	36	183	121
84.110.0201	MK 2	MK 1	17.78	12.065	20	160	85
84.110.0202	MK 2	MK 2	17.78	17.78	30	175	100
84.110.0203	MK 2	MK 3	17.78	23.825	36	196	112
84.110.0204	MK 2	MK 4	17.78	31.267	48	221	146
84.110.0301	MK 3	MK 1	23.825	12.065	20	175	81
84.110.0302	MK 3	MK 2	23.825	17.78	30	194	100
84.110.0303	MK 3	MK 3	23.825	23.825	36	215	121
84.110.0304	MK 3	MK 4	23.825	31.267	48	240	137

Ref.	d5	d4	d1	d2	d3	l1	l2
84.110.0305	MK 3	MK 5	23.825	44.399	63	275	181
84.110.0401	MK 4	MK 1	31.267	12.065	22	200	76
84.110.0402	MK 4	MK 2	31.267	17.78	30	215	97.5
84.110.0403	MK 4	MK 3	31.267	23.825	36	240	122.5
84.110.0404	MK 4	MK 4	31.267	31.267	48	265	147.5
84.110.0405	MK 4	MK 5	31.267	44.399	63	300	172
84.110.0502	MK 5	MK 2	44.399	17.78	30	247	145
84.110.0503	MK 5	MK 3	44.399	23.825	36	268	118.5
84.110.0504	MK 5	MK 4	44.399	31.267	48	300	150.5
84.110.0505	MK 5	MK 5	44.399	44.399	63	335	185.5

> 84.120 INTERNATIONAL TOOLS

- NL ECO PRO Boorhouder, voor boren met inwendige koeling, MK x MK
- FR Mandrin porte-forets ECO PRO, pour forets à lubrification interne, CM x CM
- ES Portabroca ECO PRO, para brocas con refrigeración interna, CM x CM
- DE ECO PRO Bohrfutter, für Bohrer mit Innenkühlung, MK x MK



ECO PRO

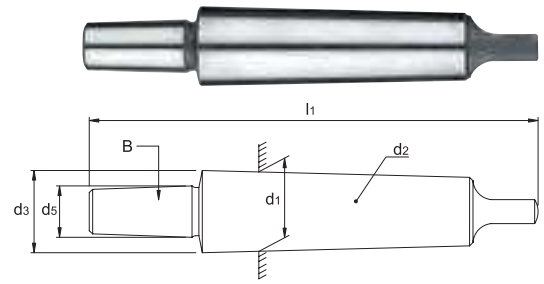
Ref.	d5	d4	d1	d2	l1	l2	l3
84.120.0202	MK 2	MK 2	17.78	17.78	175	100	38.5
84.120.0203	MK 2	MK 3	17.78	23.825	196	121	47.5
84.120.0302	MK 3	MK 2	23.825	17.78	194	100	38.5

Ref.	d5	d4	d1	d2	l1	l2	l3
84.120.0303	MK 3	MK 3	23.825	23.825	216	122	47.5
84.120.0402	MK 4	MK 2	31.267	17.78	240	122.5	38.5
84.120.0403	MK 4	MK 3	31.267	23.825	240	122.5	47.5



> 84.170 INTERNATIONAL TOOLS

- NL ECO PRO Boorhouderstift, MK en B-opname DIN 238
 FR Arbre de mandrin porte-forets 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



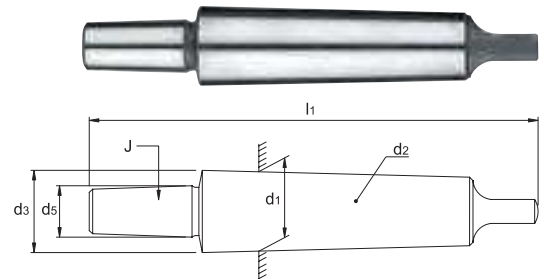
DIN 238 ECO PRO

Ref.	d2	B	l1	d1	d5	d3
84.170.0110	MK 1	B10	86	12.065	10.095	12.22
84.170.0112	MK 1	B12	90	12.065	12.065	12.22
84.170.0116	MK 1	B16	96	12.065	15.733	12.22
84.170.0118	MK 1	B18	104	12.065	17.78	12.22
84.170.0210	MK 2	B10	105	17.78	10.095	18
84.170.0212	MK 2	B12	105	17.78	12.065	18
84.170.0216	MK 2	B16	112	17.78	15.733	18
84.170.0218	MK 2	B18	119	17.78	17.78	18
84.170.0222	MK 2	B22	128	17.78	21.793	18
84.170.0312	MK 3	B12	124	23.825	12.065	24.1

Ref.	d2	B	l1	d1	d5	d3
84.170.0316	MK 3	B16	130	23.825	15.733	24.1
84.170.0318	MK 3	B18	138	23.825	17.78	24.1
84.170.0322	MK 3	B22	147	23.825	21.793	24.1
84.170.0416	MK 4	B16	156	31.267	15.733	31.6
84.170.0418	MK 4	B18	164	31.267	17.78	31.6
84.170.0422	MK 4	B22	176	31.267	21.793	31.6
84.170.0516	MK 5	B16	188	44.399	15.733	44.7
84.170.0518	MK 5	B18	198	44.399	17.78	44.7
84.170.0522	MK 5	B22	207	44.399	21.793	44.7

> 84.171 INTERNATIONAL TOOLS

- NL ECO PRO Boorhouderstift, MK- en J-opname
 FR Arbre de mandrin porte-forets ECO PRO, CM et cône J
 ES Espiga para portabrocas ECO PRO, CM y cono J
 DE ECO PRO Bohrfutterkegel, MK- und J-Aufnahme



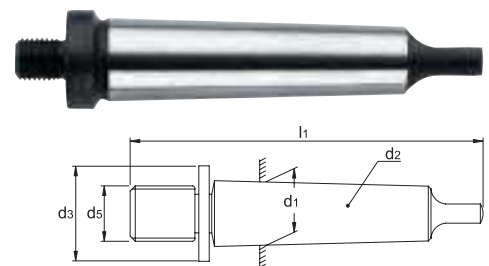
ECO PRO

Ref.	d2	J	l1	d1	d5	d3
84.171.0101	MK 1	J1	83.8	12.065	8.469	12.22
84.171.0102	MK 1	J2	90.5	12.065	12.386	12.22
84.171.0103	MK 1	J3	100.5	12.065	18.951	12.22
84.171.0201	MK 2	J1	102.5	17.78	8.469	18
84.171.0202	MK 2	J2	106	17.78	12.386	18
84.171.0203	MK 2	J3	112.5	17.78	18.951	18
84.171.0206	MK 2	J6	107	17.78	15.852	18

Ref.	d2	J	l1	d1	d5	d3
84.171.0233	MK 2	J33	107	17.78	14.237	18
84.171.0302	MK 3	J2	127	23.825	12.386	24.1
84.171.0303	MK 3	J3	131.5	23.825	18.951	24.1
84.171.0306	MK 3	J6	129	23.825	15.852	24.1
84.171.0333	MK 3	J33	126	23.825	14.237	24.1
84.171.0403	MK 4	J3	160.5	31.267	18.951	31.6
84.171.0406	MK 4	J6	155	31.267	15.852	31.6

> 84.172 INTERNATIONAL TOOLS

- NL ECO PRO Boorhouderstift, MK en UNF-UN-M-draadopname
 FR Arbre de mandrin porte-forets 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



ECO PRO

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

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

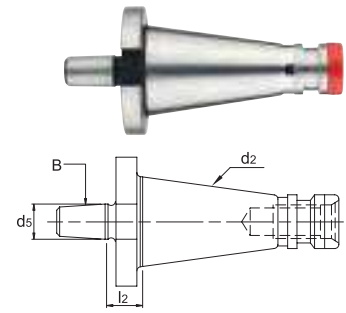
> **84.173 Phantom**

- NL Boorhouderstift, SK volgens DIN 2080, B-opname DIN 238
- FR Arbre de mandrin porte-forets, SA selon DIN 2080, cône B selon DIN 238
- ES Espiga para portabrocas, SK según DIN 2080, con sujeción B DIN 238
- DE Bohrfutterkegel, SK nach DIN 2080, B-Aufnahme DIN 238

DIN 238 SK HRC 60^{±2} AT3  0,005

Ref.	d2	B	d5	l2
84.173.3012	SK30	B12	12.065	15
84.173.3016	SK30	B16	15.733	17
84.173.4012	SK40	B12	12.065	15
84.173.4016	SK40	B16	15.733	17

Ref.	d2	B	d5	l2
84.173.4018	SK40	B18	17.78	17
84.173.5016	SK50	B16	15.733	20
84.173.5018	SK50	B18	17.78	20



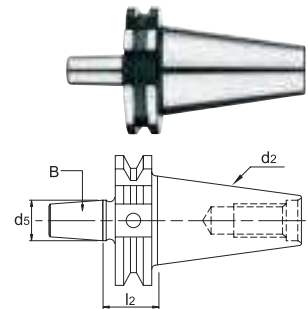
> **84.174 Phantom**

- NL Boorhouderstift, SK volgens DIN 69871, B-opname DIN 238
- FR Arbre de mandrin porte-forets, SA selon DIN 69871, cône B selon DIN 238
- ES Espiga para portabrocas, SK según DIN 69871, con sujeción B DIN 238
- DE Bohrfutterkegel, SK nach DIN 69871, B-Aufnahme DIN 238

DIN 238 SK HRC 60^{±2} AT3  0,005 G6.3 12.000 RPM

Ref.	d2	B	d5	l2
84.174.4012	SK40	B12	12.065	25
84.174.4016	SK40	B16	15.733	25
84.174.4018	SK40	B18	17.78	25

Ref.	d2	B	d5	l2
84.174.5016	SK50	B16	15.733	25
84.174.5018	SK50	B18	17.78	25



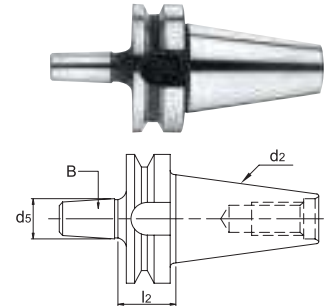
> **84.176 Phantom**

- NL Boorhouderstift, BT volgens MAS 403 BT, B-opname DIN 238
- FR Arbre de mandrin porte-forets, BT selon MAS 403 BT, cône B selon DIN 238
- ES Espiga para portabrocas, BT según MAS 403 BT, con sujeción B DIN 238
- DE Bohrfutterkegel, BT nach MAS 403 BT, B-Aufnahme DIN 238

DIN 238 MAS-BT HRC 60^{±2} AT3  0,005 G6.3 12.000 RPM

Ref.	d2	B	d5	l2
84.176.4012	BT40	B12	12.065	32
84.176.4016	BT40	B16	15.733	32
84.176.4018	BT40	B18	17.78	32

Ref.	d2	B	d5	l2
84.176.5016	BT50	B16	15.733	32
84.176.5018	BT50	B18	17.78	32

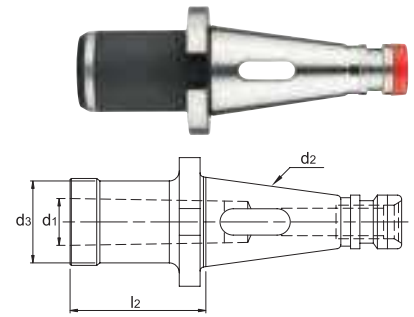


- SK 1
- HSS-E 1
- 2
- SK 3
- HSS-E 3
- 4
- 5
- 6
- 7
- 8



> 84.203 Phantom

NL Verloophuls voor MK opname, SK volgens DIN 2080
 FR Adapteur pour queues cône morse, SA selon DIN 2080
 ES Reductor a Morse, SK según DIN 2080
 DE Reduzierhülsen für MK Aufnahme, SK nach DIN 2080



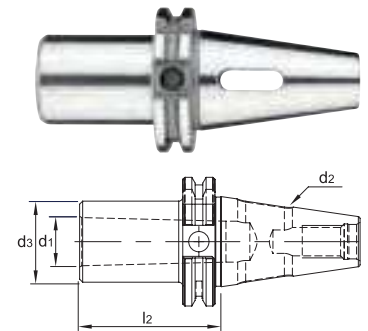
DIN 6383 SK HRC 60^{±2} AT3 \downarrow 0,005

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

Ref.	d2	d1	l2	d3
84.203.4004	SK40	4	95	48
84.203.5001	SK50	1	45	25
84.203.5002	SK50	2	60	32
84.203.5003	SK50	3	65	40
84.203.5004	SK50	4	70	48
84.203.5005	SK50	5	105	63

> 84.204 Phantom

NL Verloophuls voor MK opname, SK volgens DIN 69871
 FR Adapteur pour queues cône morse, SA selon DIN 69871
 ES Reductor a Morse, SK según DIN 69871
 DE Reduzierhülsen für MK Aufnahme, SK nach DIN 69871



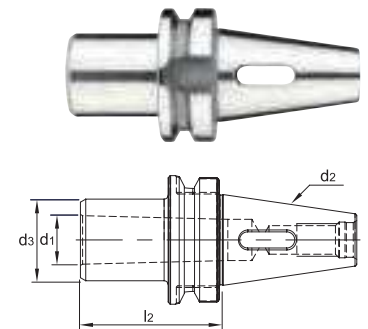
SK HRC 60^{±2} AT3 \downarrow 0,005 G6.3 15.000 RPM

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

Ref.	d2	d1	l2	d3
84.204.5002	SK50	2	60	32
84.204.5003	SK50	3	65	40
84.204.5004	SK50	4	95	48
84.204.5005	SK50	5	105	63

> 84.206 Phantom

NL Verloophuls voor MK opname, BT volgens MAS 403 BT
 FR Adapteur pour queues cône morse, BT selon MAS 403 BT
 ES Reductor a Morse, BT según MAS 403 BT
 DE Reduzierhülsen für MK Aufnahme, BT nach MAS 403 BT



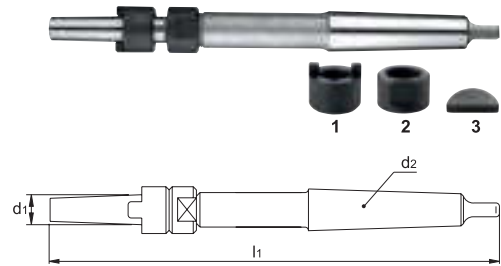
MAS-BT HRC 60^{±2} AT3 \downarrow 0,005 G6.3 15.000 RPM

Ref.	d2	d1	l2	d3
84.206.4001	BT40	1	50	25
84.206.4002	BT40	2	50	32
84.206.4003	BT40	3	70	40
84.206.4004	BT40	4	95	48
84.206.5001	BT50	1	45	25

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

> **84.410** **INTERNATIONAL TOOLS**

- NL **ECO PRO** Opsteekhouder, DIN 217, voor opsteekruimers DIN 219 en opsteekopboor DIN 222, MK
- FR **Arbre de montage ECO PRO**, DIN 217, pour alésoirs creux DIN 219 et forets creux DIN 222, CM
- ES **Porta-escariadores ECO PRO**, DIN 217, para escariadores huecos DIN 219 y brocas escariadores huecos DIN 222, CM
- DE **ECO PRO Aufsteckhalter**, DIN 217, für Aufsteckreibahlen DIN 219 und Aufsteckaufbohrer DIN 222, MK



DIN 217 **ECO PRO**

Ref.	Nr.	d1	l1	d2	Ø 51.650	Ø 13.350	1	2	3
84.410.0200	2	13	250	3	25-30	25-35	84.411.0200	84.412.0200	84.413.0200
84.410.0300	3	16	261	3	31-35	36-45	84.411.0300	84.412.0300	84.413.0300
84.410.0400	4	19	298	4	36-42	46-52	84.411.0400	84.412.0400	84.413.0400
84.410.0500	5	22	312	4	43-50	53-62	84.411.0500	84.412.0500	84.413.0500
84.410.0600	6	27	359	5	51-60	63-75	84.411.0600	84.412.0600	84.413.0600
84.410.0700	7	32	376	5	61-71	76-90	84.411.0700	84.412.0700	84.413.0700
84.410.0800	8	40	396	5	72-85	91-100	84.411.0800	84.412.0800	84.413.0800
84.410.0900	9	50	416	5	86-100	-	84.411.0900	84.412.0900	84.413.0900

> **84.411** **INTERNATIONAL TOOLS**

- NL **ECO PRO** Meeneemring voor Opsteekhouder
- FR **Bague de déblocage pour arbre de montage ECO PRO**
- ES **Arandela de arrastre para porta-escariadores ECO PRO**
- DE **ECO PRO Mitnehmerringe für Aufsteckhalter**



ECO PRO

Ref.	Nr.	Ref.	Nr.
84.411.0200	2	84.411.0600	6
84.411.0300	3	84.411.0700	7
84.411.0400	4	84.411.0800	8
84.411.0500	5	84.411.0900	9

> **84.412** **INTERNATIONAL TOOLS**

- NL **ECO PRO** Afdrukmoer voor Opsteekhouder
- FR **Écrou de déblocage pour arbre de montage ECO PRO**
- ES **Tuerca de extracción para porta-escariadores ECO PRO**
- DE **ECO PRO Abdrückmutter für Aufsteckhalter**



ECO PRO

Ref.	Nr.	Ref.	Nr.
84.412.0200	2	84.412.0600	6
84.412.0300	3	84.412.0700	7
84.412.0400	4	84.412.0800	8
84.412.0500	5	84.412.0900	9

> **84.413** **INTERNATIONAL TOOLS**

- NL **ECO PRO** Spie voor Opsteekhouder
- FR **Clavette demi-ronde pour arbre de montage ECO PRO**
- ES **Chaveta para porta-escariadores ECO PRO**
- DE **ECO PRO Keil für Aufsteckhalter**



ECO PRO

Ref.	Nr.	Ref.	Nr.
84.413.0200	2	84.413.0600	6
84.413.0300	3	84.413.0700	7
84.413.0400	4	84.413.0800	8
84.413.0500	5	84.413.0900	9





> 84.600 INTERNATIONAL TOOLS

NL ECO PRO Konusreiniger
FR Nettoie-cônes ECO PRO
ES Limpiacónos ECO PRO
DE ECO PRO Kegeliniger



ECO PRO

Ref.	d2
84.600.0100	MK 1
84.600.0200	MK 2
84.600.0300	MK 3
84.600.0400	MK 4

Ref.	d2
84.600.0500	MK 5
84.600.3000	SK 30
84.600.4000	SK 40
84.600.5000	SK 50

> 84.610 INTERNATIONAL TOOLS

NL ECO PRO Konusuitdrijver
FR Chasse-cônes ECO PRO
ES Cuña expulsora ECO PRO
DE ECO PRO Kegelaustreiber



DIN 317 **ECO PRO**

Ref.	Nr.	Ø mm	l1
84.610.0100	1	MK 1+ MK 2	140
84.610.0300	3	MK 3	190

Ref.	Nr.	Ø mm	l1
84.610.0400	4	MK 4	225
84.610.0500	5	MK 5+ MK 6	265

> 84.620 INTERNATIONAL TOOLS

NL ECO PRO Konusuitdrijver
FR Chasse-cônes ECO PRO
ES Cuña expulsora ECO PRO
DE ECO PRO Kegelaustreiber



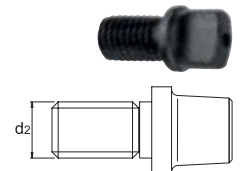
ECO PRO

Ref.	Nr.	Ø mm	l1
84.620.0100	1	MK 1-MK 3	317

Ref.	Nr.	Ø mm	l1
84.620.0200	2	MK 4- MK 6	380

> 84.745 INTERNATIONAL TOOLS

NL ECO PRO MK Uitdrijflijp
FR Tenons à visser CM ECO PRO
ES Tornillo de expulsión ECO PRO
DE ECO PRO Einschraubbare MK Austreiblappen



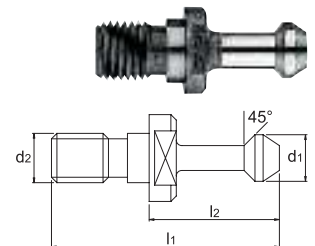
ECO PRO

Ref.	Type	d2
84.745.1000	MK 2	M10
84.745.1200	MK 3	M12

Ref.	Type	d2
84.745.1600	MK 4	M16

> 84.750 Phantom

NL Aantrekbout, BT volgens MAS 403 BT, 45°, (.XX01 = doorboorde uitvoering)
FR Tirette, BT selon MAS 403 BT, 45°, (.XX01 = version avec trou pour lubrification)
ES Tirante, BT según MAS 403 BT, 45°, (.XX01 = versión con agujero para refrigeración)
DE Anzugsbolzen, BT nach MAS 403 BT, 45°, (.XX01 = durchbohrte Ausführung)



MAS-BT

Ref.	Type	d2	d1	l1	l2
84.750.1600	BT-40 45°	M16	15	60	35
84.750.1601	BT-40 45°	M16	15	60	35

Ref.	Type	d2	d1	l1	l2
84.750.2400	BT-50 45°	M24	23	85	45
84.750.2401	BT-50 45°	M24	23	85	45

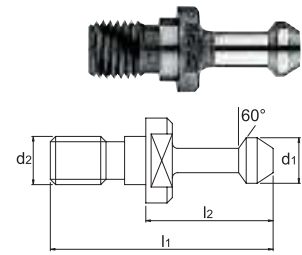
> **84.751 Phantom**

- NL Aantrekbout, BT volgens MAS 403 BT, 60°
- FR Tirette, BT selon MAS 403 BT, 60°
- ES Tirante, BT según MAS 403 BT, 60°
- DE Anzugsbolzen, BT nach MAS 403 BT, 60°



Ref.	Type	d2	d1	l1	l2
84.751.1600	BT-40 60°	M16	15	60	35

Ref.	Type	d2	d1	l1	l2
84.751.2400	BT-50 60°	M24	23	85	45



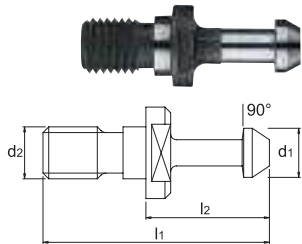
> **84.752 Phantom**

- NL Aantrekbout, BT volgens MAS 403 BT, 90°
- FR Tirette, BT selon MAS 403 BT, 90°
- ES Tirante, BT según MAS 403 BT, 90°
- DE Anzugsbolzen, BT nach MAS 403 BT, 90°



Ref.	Type	d2	d1	l1	l2
84.752.1600	BT-40 90°	M16	15	60	35

Ref.	Type	d2	d1	l1	l2
84.752.2400	BT-50 90°	M24	23	85	45



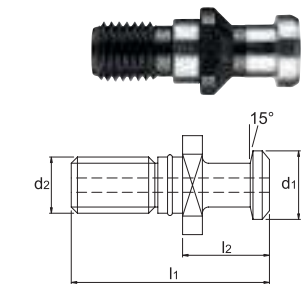
> **84.760 Phantom**

- NL Aantrekbout, DIN 69872-A, doorboorde uitvoering
- FR Tirette, DIN 69872-A, version avec trou pour lubrification
- ES Tirante, DIN 69872-A, versión con agujero para refrigeración
- DE Anzugsbolzen, DIN 69872-A, Durchbohrte Ausführung



Ref.	Type	d2	d1	l1	l2
84.760.1600	DIN 40 A2	M16	19	54	26

Ref.	Type	d2	d1	l1	l2
84.760.2400	DIN 50 A2	M24	28	74	34



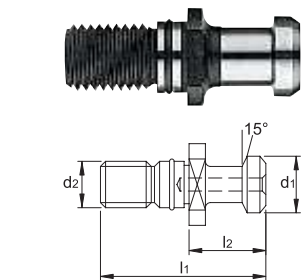
> **84.770 Phantom**

- NL Aantrekbout, DIN 69872-B, niet-doorboorde uitvoering, met O-ring
- FR Tirette, DIN 69872-B, version sans trou pour lubrification, à joint torique
- ES Tirante, DIN 69872-B, versión sin agujero para refrigeración, con junta O
- DE Anzugsbolzen, DIN 69872-B, Nicht-Durchbohrte Ausführung, mit O-Ring



Ref.	Type	d2	d1	l1	l2
84.770.1600	DIN 40 B2	M16	19	54	26

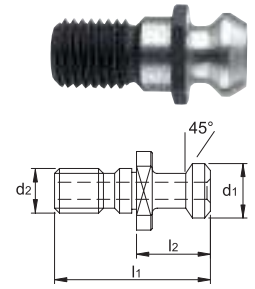
Ref.	Type	d2	d1	l1	l2
84.770.2400	DIN 50 B2	M24	28	74	34





> 84.775 Phantom

NL Aantrekbout, ISO 7388B, doorboorde uitvoering
 FR Tirette, ISO 7388B, version avec trou pour lubrification
 ES Tirante, ISO 7388B, versión con agujero para refrigeración
 DE Anzugsbolzen, ISO 7388B, Durchbohrte Ausführung



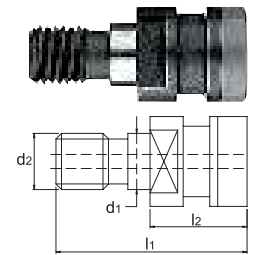
ISO
7388/2-B

Ref.	Type	d2	d1	l1	l2
84.775.1600	DIN 40 B1	M16	18.9	44.5	16.4

Ref.	Type	d2	d1	l1	l2
84.775.2400	DIN 50 B1	M24	29	65.5	25.5

> 84.780 Phantom

NL Aantrekbout, SK volgens DIN 2080, systeem OTT
 FR Tirette, SA selon DIN 2080, système OTT
 ES Tirante, SK según DIN 2080, sistema OTT
 DE Anzugsbolzen, SK nach DIN 2080, System OTT



OTT-
90°

Ref.	Type	d2	d1	l1	l2
84.780.1600	OTT 40	M16	17	55	25

Ref.	Type	d2	d1	l1	l2
84.780.2400	OTT 50	M24	25	63	25

> 84.789 Phantom

NL Koelvloeistofplug, HSK
 FR Bouchon de tube de liquide de refroidissement, HSK
 ES Enchufe del tubo de refrigerante, HSK
 DE Kühlmittelrohrstopfen, HSK



NIEUW / NOUVEAU / NUEVO / NEU

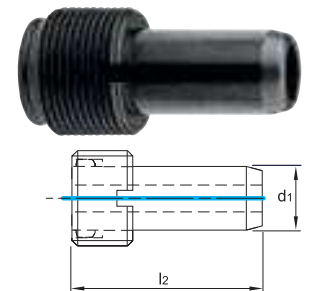
HSK-A

Ref.	Type	M
84.789.1800	HSK63	18x1

Ref.	Type	M

> 84.790 Phantom

NL Koelpijp, HSK
 FR Tube à réfrigérant, HSK
 ES Tubo de refrigerante, HSK
 DE Kühlschmierstoffrohr, HSK



NIEUW / NOUVEAU / NUEVO / NEU

HSK-A

Ref.	Type	d2	d1	l1
84.790.1800	HSK63	M18X1	12	34.5

Ref.	Type	d2	d1	l1

> **84.791** **Phantom**

- NL Koelpijp sleutel, HSK
- FR Clé pour tube à réfrigérant, HSK
- ES Llave para tubo de refrigerante, HSK
- DE Schlüssel für Kühlschmierstoffrohr, HSK



NIEUW NOUVEAU NUEVO NEU

Ref.	Type
84.791.1800	HSK63

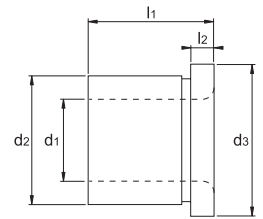
Ref.	Type





> 84.872 Phantom

NL Boorbus, korte uitvoering, met kraag
 FR Canon de perçage, version courte, à collerette
 ES Casquillo guía broca, versión corta, con valona
 DE Bohrbuchsen, kurze Ausführung, mit Kragen



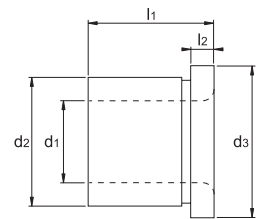
DIN 172-A n6 F7

Ref.	d1	d2	d3	l1	l2
84.872.0120 - 84.872.0180	1.2 - 1.8	4	7	6	2
84.872.0190 - 84.872.0260	1.9 - 2.6	5	8	6	2
84.872.0270 - 84.872.0330	2.7 - 3.3	6	9	8	2.5
84.872.0340 - 84.872.0400	3.4 - 4.0	7	10	8	2.5
84.872.0410 - 84.872.0500	4.1 - 5.0	8	11	8	2.5
84.872.0510 - 84.872.0600	5.1 - 6.0	10	13	10	3
84.872.0610 - 84.872.0800	6.1 - 8.0	12	15	10	3
84.872.0810 - 84.872.1000	8.1 - 10.0	15	18	12	3
84.872.1010 - 84.872.1200	10.1 - 12.0	18	22	12	4

Ref.	d1	d2	d3	l1	l2
84.872.1210 - 84.872.1500	12,1 - 15	22	26	16	4
84.872.1525 - 84.872.1800	15,25 - 18	26	30	16	4
84.872.1825 - 84.872.2200	18,25 - 22	30	34	20	5
84.872.2225 - 84.872.2600	22,25 - 26	35	39	20	5
84.872.2625 - 84.872.3000	26,25 - 30	42	46	25	5
84.872.3025 - 84.872.3500	30,25 - 35	48	52	25	5
84.872.3550 - 84.872.3750	35,5 - 37,5	55	59	25	5
84.872.3800 - 84.872.4000	38 - 40	55	59	30	5

> 84.873 Phantom

NL Boorbus, middellange uitvoering, met kraag
 FR Canon de perçage, version longue, à collerette
 ES Casquillo guía broca, versión larga, con valona
 DE Bohrbuchsen, mittellange Ausführung, mit Kragen



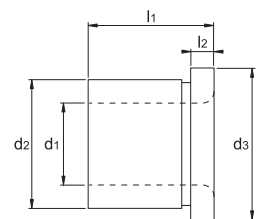
DIN 172-A n6 F7

Ref.	d1	d2	d3	l1	l2
84.873.0120 - 84.873.0180	1.2 - 1.8	4	7	9	2
84.873.0190 - 84.873.0260	1.9 - 2.6	5	8	9	2
84.873.0270 - 84.873.0330	2.7 - 3.3	6	9	12	2.5
84.873.0340 - 84.873.0400	3.4 - 4	7	10	12	2.5
84.873.0410 - 84.873.0500	4.1 - 5	8	11	12	2.5
84.873.0510 - 84.873.0600	5.1 - 6	10	13	16	3

Ref.	d1	d2	d3	l1	l2
84.873.0610 - 84.873.0800	6.1 - 8	12	15	16	3
84.873.0810 - 84.873.1000	8.1 - 10	15	18	20	3
84.873.1020 - 84.873.1200	10.2 - 12	18	22	20	4
84.873.1225 - 84.873.1500	12.25 - 15	22	26	28	4
84.873.1525 - 84.873.1800	15.25 - 18	26	30	28	4
84.873.1825 - 84.873.2000	18.25 - 20	30	34	36	5

> 84.874 Phantom

NL Boorbus, extra lange uitvoering, met kraag
 FR Canon de perçage, version extra longue, à collerette
 ES Casquillo guía broca, versión extra larga, con valona
 DE Bohrbuchsen, extra lange Ausführung, mit Kragen



DIN 172-A n6 F7

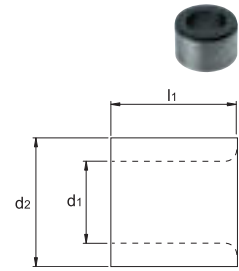
Ref.	d1	d2	d3	l1	l2
84.874.0300	3	6	9	16	2.5
84.874.0350	3.5	7	10	16	2.5
84.874.0400	4	7	10	16	2.5
84.874.0450	4.5	8	11	16	2.5
84.874.0500	5	8	11	16	2.5
84.874.0550	5.5	10	13	20	3
84.874.0600	6	10	13	20	3
84.874.0650	6.5	12	15	20	3
84.874.0700	7	12	15	20	3

Ref.	d1	d2	d3	l1	l2
84.874.0750	7.5	12	15	20	3
84.874.0800	8	12	15	20	3
84.874.0850	8.5	15	18	25	3
84.874.0900	9	15	18	25	3
84.874.0950	9.5	15	18	25	3
84.874.1000	10	15	18	25	3
84.874.1050	10.5	18	22	25	4
84.874.1100	11	18	22	25	4
84.874.1150	11.5	18	22	25	4

Ref.	d1	d2	d3	l1	l2
84.874.1200	12	18	22	25	4
84.874.1250	12.5	22	26	36	4
84.874.1300	13	22	26	36	4
84.874.1350	13.5	22	26	36	4
84.874.1400	14	22	26	36	4
84.874.1450	14.5	22	26	36	4
84.874.1500	15	22	26	36	4
84.874.1550	15.5	26	30	36	4
84.874.1600	16	26	30	36	4

> **84.879 Phantom**

NL Boorbus, korte uitvoering
 FR Canon de perçage, version courte
 ES Casquillo guía broca, versión corta
 DE Bohrbuchsen, kurze Ausführung



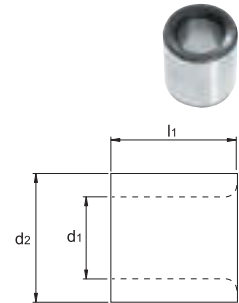
DIN 179-A n6 F7

Ref.	d1	d2	l1
84.879.0120 - 84.879.0180	1.2 - 1.8	4	6
84.879.0190 - 84.879.0260	1.9 - 2.6	5	6
84.879.0270 - 84.879.0330	2.7 - 3.3	6	8
84.879.0340 - 84.879.0400	3.4 - 4	7	8
84.879.0410 - 84.879.0500	4.1 - 5	8	8
84.879.0510 - 84.879.0600	5.1 - 6	10	10
84.897.0610 - 84.879.0800	6.1 - 8	12	10
84.879.0810 - 84.879.1000	8.1 - 10	15	12
84.879.1010 - 84.879.1200	10.1 - 12	18	12
84.879.1210 - 84.879.1500	12.1 - 15	22	16

Ref.	d1	d2	l1
84.879.1525 - 84.879.1800	15.25 - 18	26	16
84.879.1825 - 84.879.2200	18.25 - 22	30	20
84.879.2225 - 84.879.2600	22.25 - 26	35	20
84.879.2625 - 84.879.3000	26.25 - 30	42	25
84.879.3025 - 84.879.3500	30.25 - 35	48	25
84.879.3550 - 84.879.4200	35.5 - 42	55	30
84.879.4300 - 84.879.4800	43 - 48	62	30
84.879.4900 - 84.879.5500	49 - 55	70	30
84.879.6000 - 84.879.6200	60 - 62	78	35
84.879.6500	65	85	35

> **84.880 Phantom**

NL Boorbus, middellange uitvoering
 FR Canon de perçage, version longue
 ES Casquillo guía broca, versión larga
 DE Bohrbuchsen, mittellange Ausführung



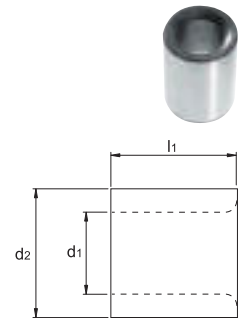
DIN 179-A n6 F7

Ref.	d1	d2	l1
84.880.0120 - 84.880.0180	1.2 - 1.8	4	9
84.880.0190 - 84.880.0260	1.9 - 2.6	5	9
84.880.0270 - 84.880.0330	2.7 - 3.3	6	12
84.880.0340 - 84.880.0400	3.4 - 4	7	12
84.880.0410 - 84.880.0500	4.1 - 5	8	12
84.880.0510 - 84.880.0600	5.1 - 6	10	16
84.880.0610 - 84.880.0800	6.1 - 8	12	16

Ref.	d1	d2	l1
84.880.0810 - 84.880.1000	8.1 - 10	15	20
84.880.1020 - 84.880.1200	10.2 - 12	18	20
84.880.1225 - 84.880.1500	12.25 - 15	22	28
84.880.1525 - 84.880.1800	15.25 - 18	26	28
84.880.1825 - 84.880.2500	18.25 - 25	30	36
84.880.2500	25	35	36

> **84.881 Phantom**

NL Boorbus, extra lange uitvoering
 FR Canon de perçage, version extra longue
 ES Casquillo guía broca, versión extra larga
 DE Bohrbuchsen, extra lange Ausführung



DIN 179-A n6 F7

Ref.	d1	d2	l1
84.881.0300	3	6	16
84.881.0350	3.5	7	16
84.881.0400	4	7	16
84.881.0450	4.5	8	16
84.881.0500	5	8	16
84.881.0550	5.5	10	20
84.881.0600	6	10	20
84.881.0650	6.5	12	20
84.881.0700	7	12	20
84.881.0750	7.5	12	20

Ref.	d1	d2	l1
84.881.0780	7.8	12	20
84.881.0800	8	12	20
84.881.0850	8.5	15	25
84.881.0900	9	15	25
84.881.0950	9.5	15	25
84.881.1000	10	15	25
84.881.1050	10.5	18	25
84.881.1100	11	18	25
84.881.1150	11.5	18	25
84.881.1200	12	18	25

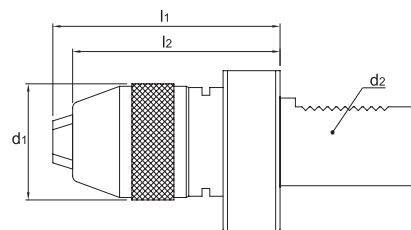
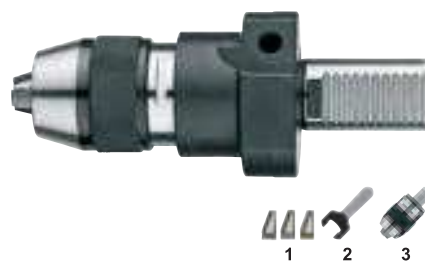
Ref.	d1	d2	l1
84.881.1250	12.5	22	36
84.881.1300	13	22	36
84.881.1350	13.5	22	36
84.881.1400	14	22	36
84.881.1450	14.5	22	36
84.881.1500	15	22	36
84.881.1550	15.5	26	36
84.881.1600	16	26	36
84.881.1650	16.5	26	36





> 84.908 Phantom

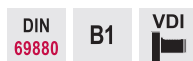
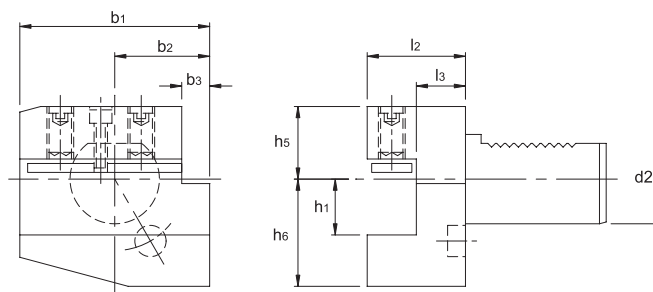
- NL Zelfspannende Precisieboorhouder, type XP, VDI volgens DIN 69880
 FR Mandrin porte-forets de précision auto-serrant, type XP, VDI selon DIN 69880
 ES Portabroca de precisión, cierre automático, tipo XP, VDI según DIN 69880
 DE Selbstspannende Präzisionsbohrfutter, Typ XP, VDI nach DIN 69880



Ref.	Ø mm	d2	d1	l1	l2	Type	1	2	3
84.908.3013	1-13	SK30	48	105	94	13XP	81.412.1300	81.413.1300	81.414.1300
84.908.4013	1-13	SK40	48	92	85	13XP	81.412.1300	81.413.1300	81.414.1300
84.908.4016	3-16	SK40	55	96	85	16XP	81.412.1600	81.413.1600	81.414.1640

> 84.910 Phantom

- NL VDI-houder DIN 69880, uitvoering B1, radiaal, rechts
 FR Porte-outils VDI DIN 69880, version B1, radial, à droite
 ES Portaherramientas VDI DIN 69880, versión B1, radial, a derecha
 DE VDI-Halter DIN 69880, Ausführung B1, radial, rechts

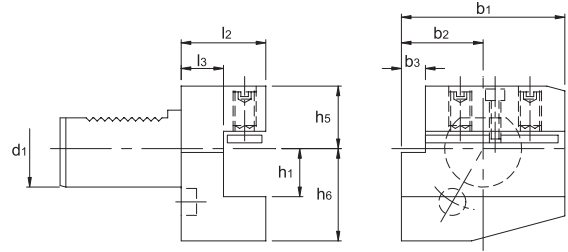


Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.910.3024	30	40	22	20	28	38	70	35	10
84.910.4024	40	44	22	25	32.5	48	85	42.5	12.5

Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.910.5035	50	55	30	32	35	60	100	50	16

> **84.911** **Phantom**

- NL VDI-houder DIN 69880, uitvoering B2, radiaal, links
- FR Porte-outils VDI DIN 69880, version B2, radial, à gauche
- ES Portaherramientas VDI DIN 69880, versión B2, radial, a la izquierda
- DE VDI-Halter DIN 69880, Ausführung B2, radial, links

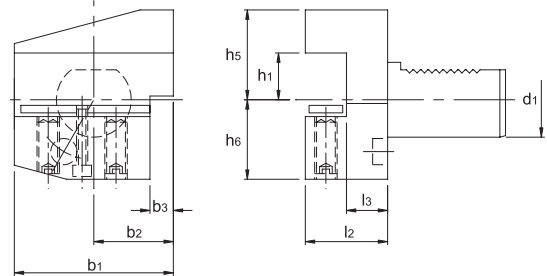


Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.911.3024	30	40	22	20	28	38	70	35	10
84.911.4024	40	44	22	25	32.5	48	85	42.5	12.5

Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.911.5035	50	55	30	32	35	60	100	50	16

> **84.912** **Phantom**

- NL VDI-houder DIN 69880, uitvoering B3, radiaal, rechts
- FR Porte-outils VDI DIN 69880, version B3, radial, à droite
- ES Portaherramientas VDI DIN 69880, versión B3, radial, a derecha
- DE VDI-Halter DIN 69880, Ausführung B3, radial, rechts



Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.912.3024	30	40	22	20	38	35	70	35	10
84.912.4024	40	44	22	25	48	42.5	85	42.5	12.5

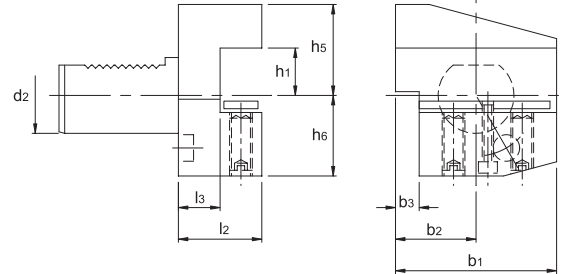
Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.912.5035	50	55	30	32	60	50	100	50	16





> 84.913 Phantom

NL VDI-houder DIN 69880, uitvoering B4, radiaal, links
 FR Porte-outils VDI DIN 69880, version B4, radial, à gauche
 ES Portaherramientas VDI DIN 69880, versión B4, radial, a la izquierda
 DE VDI-Halter DIN 69880, Ausführung B4, radial, links



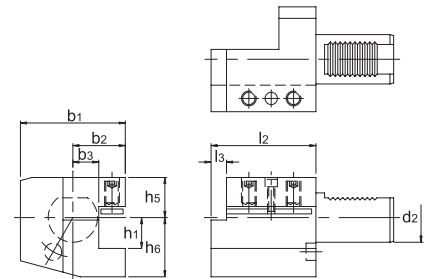
DIN 69880 B4 VDI

Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.913.3024	30	40	22	20	38	35	70	35	10
84.913.4024	40	44	22	25	48	42.5	85	42.5	12.5

Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.913.5035	50	55	30	32	60	50	100	50	16

> 84.920 Phantom

NL VDI-houder DIN 69880, uitvoering C1, axiaal, rechts
 FR Porte-outils VDI DIN 69880, version C1, axial, à droite
 ES Portaherramientas VDI DIN 69880, versión C1, axial, a derecha
 DE VDI-Halter DIN 69880, Ausführung C1, axial, rechts



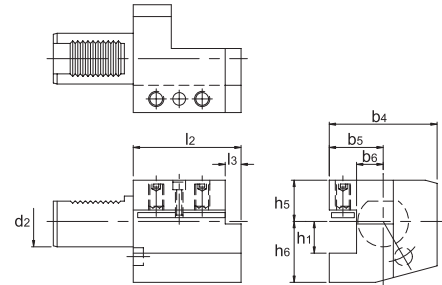
DIN 69880 C1 VDI

Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.920.3027	30	70	10	20	28	38	70	35	17
84.920.4028	40	85	12.5	25	32.5	48	85	42.5	21

Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.920.5031	50	100	16	32	35	60	100	50	26

> **84.921** **Phantom**

NL VDI-houder DIN 69880, uitvoering C2, axiaal, links
 FR Porte-outils VDI DIN 69880, version C2, axial, à gauche
 ES Portaherramientas VDI DIN 69880, versión C2, axial, a la izquierda
 DE VDI-Halter DIN 69880, Ausführung C2, axial, links



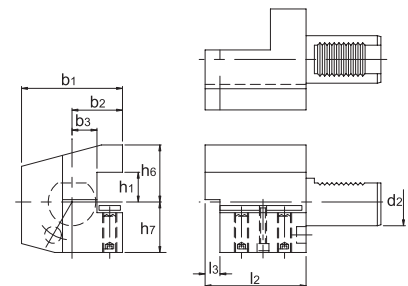
DIN	C2	VDI
69880		

Ref.	d2	l2	l3	h1	h5	h6	b4	b5	b6
84.921.3027	30	70	10	20	28	38	70	41	23
84.921.4029	40	85	12.5	25	32.5	48	85	47.5	25.5

Ref.	d2	l2	l3	h1	h5	h6	b4	b5	b6
84.921.5031	50	100	16	32	35	60	100	55	30.5

> **84.922** **Phantom**

NL VDI-houder DIN 69880, uitvoering C3, axiaal, links
 FR Porte-outils VDI DIN 69880, version C3, axial, à gauche
 ES Portaherramientas VDI DIN 69880, versión C3, axial, a la izquierda
 DE VDI-Halter DIN 69880, Ausführung C3, axial, links



DIN	C3	VDI
69880		

Ref.	d2	l2	l3	h1	h6	h7	b1	b2	b3
84.922.3027	30	70	10	20	38	35	70	35	17
84.922.4028	40	85	12.5	25	48	42.5	85	42.5	21

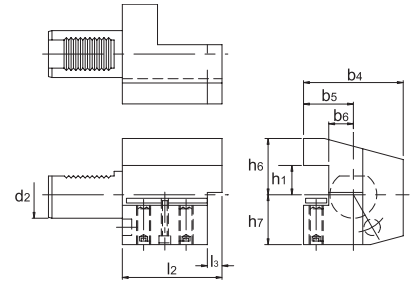
Ref.	d2	l2	l3	h1	h6	h7	b1	b2	b3
84.922.5031	50	100	16	32	60	50	100	50	26





> 84.923 Phantom

NL VDI-houder DIN 69880, uitvoering C4, axiaal, links
 FR Porte-outils VDI DIN 69880, version C4, axial, à gauche
 ES Portaherramientas VDI DIN 69880, versión C4, axial, a la izquierda
 DE VDI-Halter DIN 69880, Ausführung C4, axial, links



DIN
69880

C4

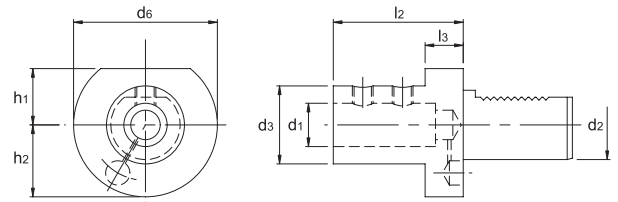
VDI

Ref.	d2	l2	l3	b4	b5	b6	h1	h6	h7
84.923.3027	30	70	10	70	35	17	20	35	38
84.923.4029	40	85	12.5	85	42.5	21	25	42.5	48

Ref.	d2	l2	l3	b4	b5	b6	h1	h6	h7
84.923.5031	50	100	16	100	50	26	32	50	60

> 84.950 Phantom

NL VDI-houder DIN 69880, uitvoering E1, voor volboren
 FR Porte-outils VDI DIN 69880, version E1, pour forets à plaquettes
 ES Portaherramientas VDI DIN 69880, versión E1, para Brocas con plaquitas
 DE VDI-Halter DIN 69880, Ausführung E1, für Vollbohren



DIN
69880

E1

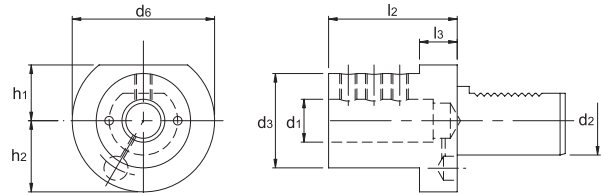
VDI

Ref.	d2	d1	d3	d6	h1	h2	l2	l3
84.950.3016	30	16	36	68	28	30	64	22
84.950.3020	30	20	40	68	28	30	67	22
84.950.3025	30	25	45	68	28	30	71	22
84.950.3032	30	32	52	68	28	30	75	22
84.950.4016	40	16	36	83	32.5		64	22
84.950.4020	40	20	40	83	32.5		67	22
84.950.4025	40	25	45	83	32.5		75	22
84.950.4032	40	32	52	83	32.5		75	22

Ref.	d2	d1	d3	d6	h1	h2	l2	l3
84.950.4040	40	40	60	83	32.5		90	22
84.950.5016	50	16	40	98	35		66	30
84.950.5020	50	20	40	98	35		66	30
84.950.5025	50	25	45	98	35		80	30
84.950.5032	50	32	52	98	35		80	30
84.950.5040	50	40	65	98	35		90	30
84.950.5050	50	50	75	98	35		100	30

> **84.951** **Phantom**

- NL **VDI-houder DIN 69880, uitvoering E2, voor cilindrische opname**
- FR **Porte-outils VDI DIN 69880, version E2, pour queues cylindriques**
- ES **Portaherramientas VDI DIN 69880, versión E2, para mangos cilíndricos**
- DE **VDI-Halter DIN 69880, Ausführung E2, für zylindrische Aufnahme**



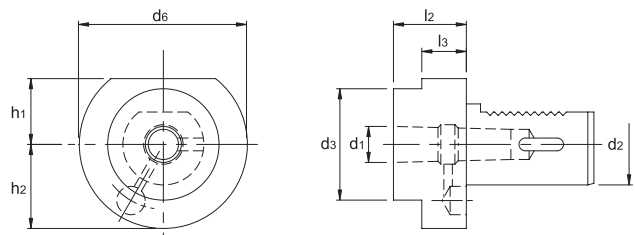
DIN 69880 **E2** **VDI**

Ref.	d2	d1	d3	d6	h1	h2	l2	l3
84.951.3008	30	8	55	68	28	30	60	22
84.951.3010	30	10	55	68	28	30	60	22
84.951.3012	30	12	55	68	28	30	60	22
84.951.3016	30	16	55	68	28	30	60	22
84.951.3020	30	20	55	68	28	30	60	22
84.951.3025	30	25	55	68	28	30	60	22
84.951.3032	30	32	55	68	28	30	75	22
84.951.4008	40	8	55	83	32.5		75	22
84.951.4010	40	10	55	83	32.5		75	22
84.951.4012	40	12	55	83	32.5		75	22
84.951.4016	40	16	55	83	32.5		75	22

Ref.	d2	d1	d3	d6	h1	h2	l2	l3
84.951.4020	40	20	55	83	32.5		75	22
84.951.4025	40	25	55	83	32.5		75	22
84.951.4032	40	32	83	83	32.5		75	22
84.951.4040	40	40	83	83	32.5		90	22
84.951.5012	50	12	68	98	35		90	30
84.951.5016	50	16	68	98	35		90	30
84.951.5020	50	20	68	98	35		90	30
84.951.5025	50	25	68	98	35		90	30
84.951.5032	50	32	68	98	35		90	30
84.951.5040	50	40	98	98	35		90	30
84.951.5050	50	50	98	98	35		100	30

> **84.955** **Phantom**

- NL **VDI-houder DIN 69880, uitvoering F1, voor MK volgens DIN 228-B**
- FR **Porte-outils VDI DIN 69880, version F1, pour CM selon DIN 228-B**
- ES **Portaherramientas VDI DIN 69880, versión F1, para CM según DIN 228-B**
- DE **VDI-Halter DIN 69880, Ausführung F1, für MK nach DIN 228-B**



DIN 69880 **F1** **VDI**

Ref.	d2	d1	d3	l2	l3	d6	h1	h2
84.955.3001	30	1		27		68	28	30
84.955.3002	30	2		27		68	28	30
84.955.3003	30	3	58	40	22	68	28	30
84.955.4002	40	2	55	36	22	83	32.5	
84.955.4003	40	3	55	36	22	83	32.5	

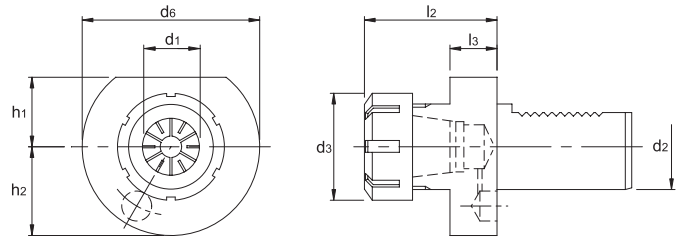
Ref.	d2	d1	d3	l2	l3	d6	h1	h2
84.955.4004	40	4	68	80	22	83	32.5	
84.955.5002	50	2	55	36	30	98	35	
84.955.5003	50	3	58	36	30	98	35	
84.955.5004	50	4	68	50	30	98	35	
84.955.5005	50	5	75	72	30	98	35	





> 84.958 Phantom

NL VDI-houder DIN 69880, uitvoering E4, spantanghouder
 FR Porte-outils VDI DIN 69880, version E4, mandrin porte-pinces
 ES Portaherramientas VDI DIN 69880, versión E4, portapinzas
 DE VDI-Halter DIN 69880, Ausführung E4, Spannzangenfutter



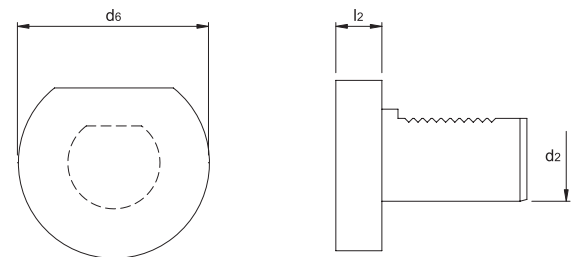
DIN 69880 E4 VDI

Ref.	d2	d1	d6	d3	h1	l2	l3	h2	Ø mm
84.958.3025	30	ER25	68	42	28	57	22	34	2-16
84.958.3032	30	ER32	68	50	28	75	22	34	2-20
84.958.3040	30	ER40	68	63	28	75	22	34	3-26
84.958.4025	40	ER25	83	42	32.5	75	22	41.5	2-16

Ref.	d2	d1	d6	d3	h1	l2	l3	h2	Ø mm
84.958.4032	40	ER32	83	50	32.5	75	22	41.5	2-20
84.958.4040	40	ER40	83	63	32.5	75	22	41.5	3-26
84.958.5040	50	ER40	98	63	35	75	30	49	3-26

> 84.961 Phantom

NL Afstopplug, VDI-houder DIN 69880
 FR Bouchon de protection, Porte-outils VDI DIN 69880
 ES Tapón de protección, Portaherramientas VDI DIN 69880
 DE Verschlussstopfen, VDI-Halter DIN 69880

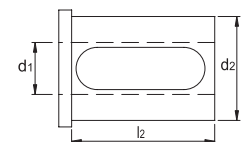


Ref.	d2	l2	d6
84.961.3068	30	20	68
84.961.4083	40	20	83

Ref.	d2	l2	d6
84.961.5098	50	20	98

> 84.970 Phantom

NL Reduceerhuls, voor VDI-houder DIN 69880 E2
 FR Douille de réduction, pour porte-outils VDI DIN 69880 E2
 ES Casquillo de reducción, para Portaherramientas VDI DIN 69880 E2
 DE Reduzierhülsen, für VDI-Halter DIN 69880 E2

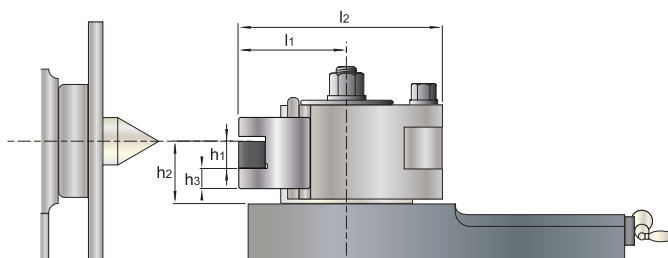
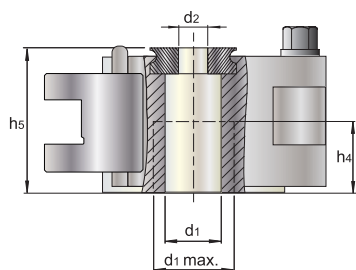
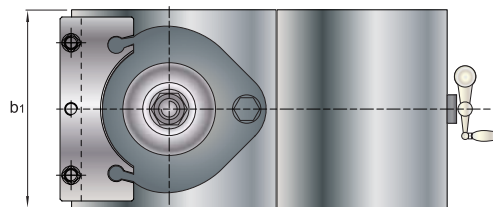


Ref.	d2	d1	l2
84.970.2506	25	6	46
84.970.2508	25	8	46
84.970.2510	25	10	46
84.970.2512	25	12	46
84.970.2516	25	16	46
84.970.3208	32	8	56
84.970.3210	32	10	56
84.970.3212	32	12	56

Ref.	d2	d1	l2
84.970.3216	32	16	56
84.970.3220	32	20	56
84.970.3225	32	25	56
84.970.4012	40	12	71
84.970.4016	40	16	71
84.970.4020	40	20	71
84.970.4025	40	25	71
84.970.4032	40	32	71

> **85.050** **Phantom**

NL Snelwissel-Basishouder
 FR Mandrin de base à serrage rapide
 ES Torreta de precisión para herramientas de torno con cambio rápido
 DE Schnellwechsel- Grundhalter

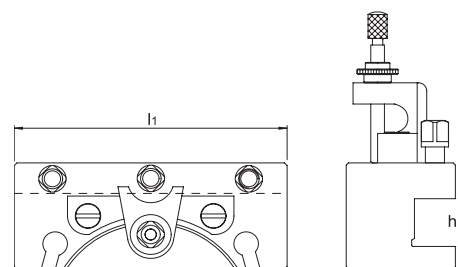


Ref.	Type	Holder	d1	d1 max	d2	h4	h5	b1
85.050.0000	Aa	Aad 12	13		10	35	37	80
85.050.1000	A	AD 16	20	35	10	35	56	100
85.050.3000	B	BD 25	32	40	16	45	79	150

Ref.	Type	Holder	d1	d1 max	d2	h4	h5	b1
85.050.4000	C	CD 32	40	55	16	75	110	180
85.050.5000	D1	D1D 40	40	65	22	75	122	200

> **85.051** **Phantom**

NL Snelwissel-Draaibehouder, type D
 FR Porte-outils de tournage à serrage rapide, type D
 ES Soporte de cambio Rápido, para exteriores, herramientas de torno, tipo D
 DE Schnellwechsel-Drehstahlhalter, Typ D



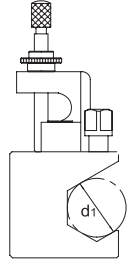
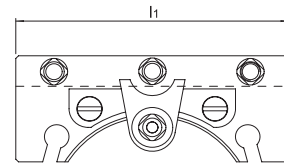
Ref.	Type	Nr.	l1	h1
85.051.0120	AaD 1250	Aa	50	12
85.051.1167	AD 1675	A	75	16
85.051.1169	AD 1690	A	90	16
85.051.1207	AD 2075	A	75	20
85.051.1209	AD 2090	A	90	20
85.051.3252	BD 25120	B	120	25
85.051.3254	BD 25140	B	140	25
85.051.3322	BD 32120	B	120	32
85.051.3324	BD 32140	B	140	32

Ref.	Type	Nr.	l1	h1
85.051.4325	CD 32150	C	150	32
85.051.4327	CD 32170	C	170	32
85.051.4405	CD 40150	C	150	40
85.051.4407	CD 40170	C	170	40
85.051.4457	CD 45170	C	170	45
85.051.5400	D1D 40180	D1	180	40
85.051.5500	D1D 50180	D1	180	50
85.051.5630	D1D 63180	D1	180	63



> 85.052 Phantom

NL Snelwissel-Boorbeitelhouder, type H
 FR Porte-outils d'alésage à serrage rapide, type H
 ES Soporte de cambio Rápido, para interiores exagonal, tipo, tipo H
 DE Schnellwechsel-Bohrstangenhalter, Typ H

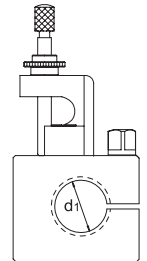
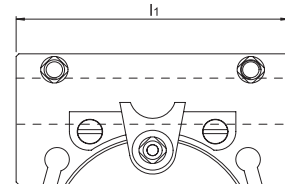


Ref.	Type	Nr.	l1	d1
85.052.0120	AaH 1250	Aa	50	12
85.052.1200	AH 2085	A	85	20
85.052.3320	BH 32130	B	130	32

Ref.	Type	Nr.	l1	d1
85.052.4400	CH 40160	C	160	40
85.052.5630	D1BH 63180	D1	180	63

> 85.053 Phantom

NL Snelwissel-Boorbaarhouder, type J
 FR Porte-barre d'alésage à serrage rapide, type J
 ES Soporte de cambio Rápido, para interiores cilíndrico, tipo J
 DE Schnellwechsel-Halter mit zylindrischer Bohrung, Typ J

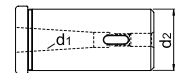


Ref.	Type	Nr.	l1	d1
85.053.0150	AaJ 1550	Aa	50	15
85.053.1300	AJ 3080	A	85	30
85.053.3400	BJ 40120	B	130	40

Ref.	Type	Nr.	l1	d1
85.053.4400	CJ 40160	C	160	40
85.053.4500	CJ 50160	C	160	50
85.053.5630	D1J 63180	D1	180	63

> 85.058 Phantom

NL Morsekonushuls, type L
 FR Douille avec cône morse, type L
 ES casquillo para cono Morse, tipo L
 DE Konusbuchse, Typ L

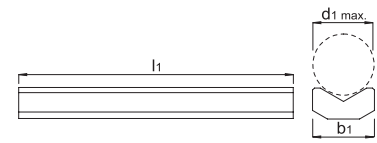


Ref.	Type	d1	d2
85.058.1010	AL1	1	30
85.058.1020	AL2	2	30
85.058.3020	BL2	2	40
85.058.3030	BL3	3	40

Ref.	Type	d1	d2
85.058.3040	BL4	4	40
85.058.4030	CL3	3	50
85.058.4040	CL4	4	50
85.058.5050	CL5	5	63

> **85.059 Phantom**

NL Inlegprisma, type P
 FR Mors, type P
 ES Garra de ajuste, tipo P
 DE V-Block, Typ P

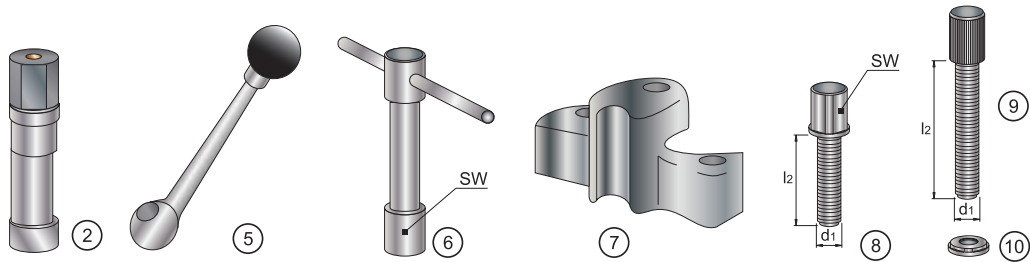


Ref.	Type	d1 max	l1	b1
85.059.1140	AP 1485	14	85	16
85.059.3200	BP 20130	20	130	22

Ref.	Type	d1 max	l1	b1
85.059.4250	CP 25160	25	160	30
85.059.4320	CP 32160	32	160	38

> **85.062 Phantom**

NL Onderdelen en Toebehoren
 FR Pièces détachées et Accessoires
 ES Componentes fundamentales y Accesorios
 DE Einzelteile und Zubehör



Ref.	Type	Nr.	d1	P	l2	sw
85.062.0002	Aa	7				
85.062.0006	Aa	8	5	0.8	20	5
85.062.0008	Aa	9+10	4	0.7	25	
85.062.0012	Aa	5				
85.062.0014	Aa	6				5
85.062.0024	Aa	2				
85.062.1002	A	7				
85.062.1006	A	8	7	1	25	8
85.062.1008	A	9+10	5	0.8	35	
85.062.1012	A	5				
85.062.1014	A	6				8
85.062.1024	A	2				
85.062.3002	B	7				
85.062.3006	B	8	11	1.5	30	10
85.062.3008	B	9+10	7	1	57	

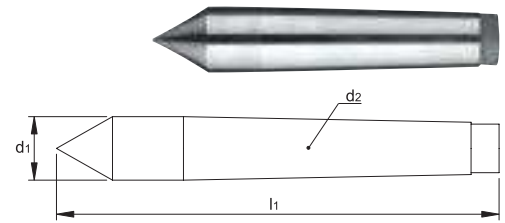
Ref.	Type	Nr.	d1	P	l2	sw
85.062.3012	B	5				
85.062.3014	B	6				10
85.062.3024	B	2				
85.062.4002	C	7				
85.062.4006	C + D1	8	14	1.5	40	14
85.062.4008	C	9+10	9	1.25	65	
85.062.4012	C	5				
85.062.4014	C	6				14
85.062.4024	C	2				
85.062.5002	D1	8				
85.062.5008	D1	9+10	12	1.75	80	
85.062.5012	D1	5				
85.062.5014	D1	6				14
85.062.5024	D1	2				





> 85.100 INTERNATIONAL TOOLS

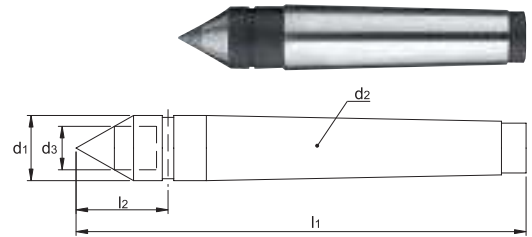
NL ECO PRO Vast Center, 60°, MK
 FR Contre-pointe fixe ECO PRO, 60°, CM
 ES Contrapunto fijo ECO PRO, 60°, CM
 DE ECO PRO Feste Zentrierspitzen, 60°, MK



Ref.	d2	d1	l1
85.100.0100	MK 1	12.2	80
85.100.0200	MK 2	18	100
85.100.0300	MK 3	24.1	125
85.100.0400	MK 4	31.6	160
85.100.0500	MK 5	44.7	200
85.100.0600	MK 6	63.8	270

> 85.110 INTERNATIONAL TOOLS

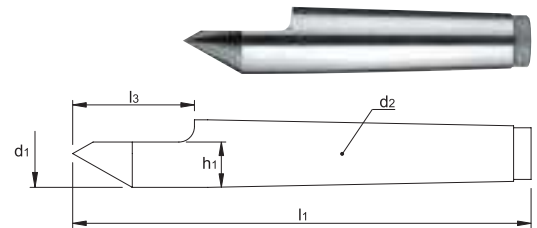
NL ECO PRO Vast Center, met HM-punt, 60°, MK
 FR Contre-pointe fixe ECO PRO, à pointe carbure, 60°, CM
 ES Contrapunto fijo ECO PRO, con punta de MD, 60°, CM
 DE ECO PRO Feste Zentrierspitzen, mit HM-Spitze, 60°, MK



Ref.	d2	d1	d3	l2	l1
85.110.0100	MK 1	12.2	7	16	80
85.110.0200	MK 2	18	7	21	100
85.110.0300	MK 3	24.1	11	27	125
85.110.0400	MK 4	31.6	14	31.2	160
85.110.0500	MK 5	44.7	18	45	200
85.110.0600	MK 6	63.8	18	62	270

> 85.120 INTERNATIONAL TOOLS

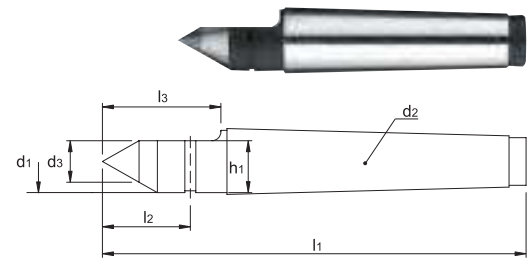
NL ECO PRO Vast Center, 60°, met uitgediepte punt, MK
 FR Contre-pointe fixe ECO PRO, 60°, avec pointe approfondie, CM
 ES Contrapunto fijo ECO PRO, 60°, con media punta rebajada, CM
 DE ECO PRO Feste Zentrierspitzen, 60°, mit verdünnter Spitze, MK



Ref.	d2	d1	h1	l3	l1
85.120.0100	MK 1	12.2	7.6	22	80
85.120.0200	MK 2	18	11	30	100
85.120.0300	MK 3	24.1	15.05	38	125
85.120.0400	MK 4	31.6	20.8	50	160
85.120.0500	MK 5	44.7	29.35	63	200
85.120.0600	MK 6	63.8	41.9	79	270

> 85.130 INTERNATIONAL TOOLS

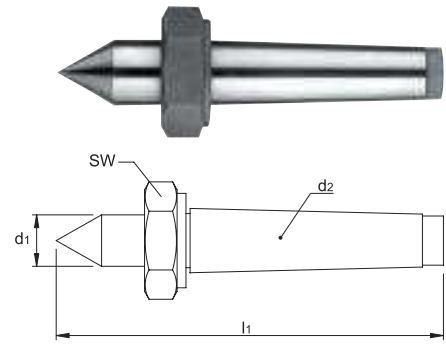
NL ECO PRO Vast Center, 60°, met uitgediepte HM-punt, MK
 FR Contre-pointe fixe ECO PRO, 60°, avec pointe carbure approfondie, CM
 ES Contrapunto fijo ECO PRO, 60°, con media punta rebajada de MD, CM
 DE ECO PRO Feste Zentrierspitzen, 60°, mit verdünnter HM-Spitze, MK



Ref.	d2	d1	d3	h1	l2	l3	l1
85.130.0100	MK 1	12.2	7.6	7.6	16	22	80
85.130.0200	MK 2	18	7	12.8	21	30	100
85.130.0300	MK 3	24.1	11	18.05	27	38	125
85.130.0400	MK 4	31.6	14	23.3	31.2	50	160
85.130.0500	MK 5	44.7	18	31.85	45	63	200
85.130.0600	MK 6	63.8	41.9	41.9	62	79	270

> **85.140** **INTERNATIONAL TOOLS**

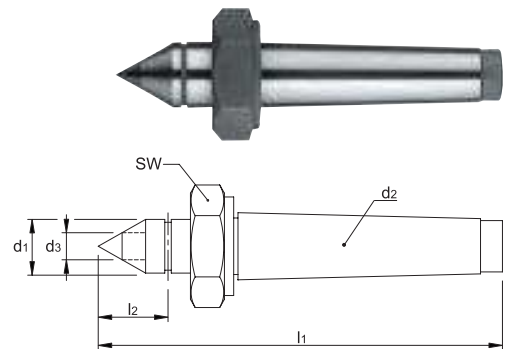
- NL **ECO PRO Vast Center, 60°, met afdrukmoer, MK**
- FR **Contre-pointe fixe ECO PRO, 60°, avec écrou de déblocage, CM**
- ES **Contrapunto fijo ECO PRO, 60°, con tuerca de extracción, CM**
- DE **ECO PRO Feste Zentrierspitzen, 60°, mit Abdrückmutter, MK**



Ref.	d2	d1	sw	l1
85.140.0100	MK 1	12.1	24	80
85.140.0200	MK 2	17.8	32	100
85.140.0300	MK 3	23.8	41	125
85.140.0400	MK 4	31.3	55	160
85.140.0500	MK 5	44.4	75	200

> **85.150** **INTERNATIONAL TOOLS**

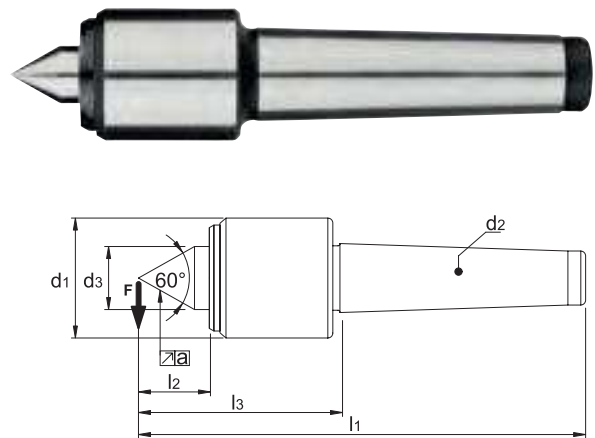
- NL **ECO PRO Vast Center, met HM-punt, 60°, met afdrukmoer, MK**
- FR **Contre-pointe fixe ECO PRO, à pointe carbure, 60°, avec écrou de déblocage, CM**
- ES **Contrapunto fijo ECO PRO, con punta de MD, 60°, con tuerca de extracción, CM**
- DE **ECO PRO Feste Zentrierspitzen, mit HM-Spitze, 60°, mit Abdrückmutter, MK**



Ref.	d2	d1	d3	sw	l2	l1
85.150.0200	MK 2	18	8	32	21	100
85.150.0300	MK 3	24.1	12	41	27	125
85.150.0400	MK 4	31.3	15	55	31.2	160
85.150.0500	MK 5	44.4	18	75	45	200

> **85.210** **Phantom**

- NL **Medium Duty Meedraaiend Center, MK**
- FR **Medium Duty Contre-pointe à grande capacité, CM**
- ES **Contrapunto giratorio de gran capacidad, a media carga, CM**
- DE **Mitlaufende Medium Duty Drehbankspitze, MK**

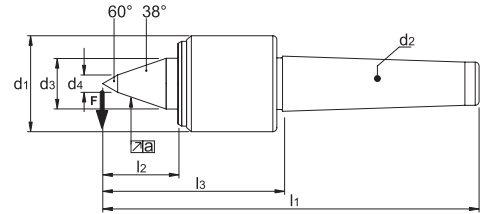


Ref.	d2	d1	d3	l1	l3	l2	F (Kg)	RPM	Tol.
85.210.0200	MK 2	34	15	131.5	67.5	19	200	7000	0,005
85.210.0300	MK 3	34	15	148.5	67.5	19	400	7000	0,005
85.210.0400	MK 4	42	20	183.5	81	25	800	6300	0,005
85.210.0500	MK 5	68	32	248.5	119	41	1600	4300	0,01



> 85.215 Phantom

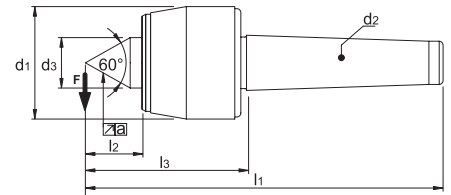
- NL Medium Duty Meedraaiend Center , met verlengde punt, MK
 FR Medium Duty Centre-pointe à grande capacité, avec pointe allongée, CM
 ES Contrapunto giratorio de gran capacidad, a media carga, punta extendida, CM
 DE Mitlaufende Medium Duty Drehbankspitze, mit Spitzenverlängerung, MK



Ref.	d1	d2	d3	d4	l1	l2	l3	F (Kg)	RPM	Tol.
85.215.0200	34	MK 2	15	10	141.5	29	77.5	170	7000	0,008
85.215.0300	34	MK 3	15	11	159.5	30	78.5	340	7000	0,008
85.215.0400	42	MK 4	20	13	196.5	38	94	700	6300	0,008
85.215.0500	68	MK 5	32	14	260.5	53	131	1400	4300	0,01

> 85.220 Phantom

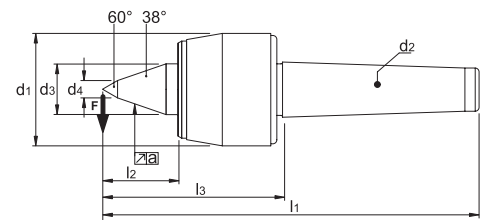
- NL Heavy Duty Meedraaiend Center, MK
 FR Heavy Duty Centre-pointe à grande capacité, CM
 ES Contrapunto giratorio de grand capacidad, CM
 DE Mitlaufende Heavy Duty Drehbankspitze, MK



Ref.	d2	d1	d3	l1	l3	l2	F (Kg)	RPM	Tol.
85.220.0200	MK 2	46	20	139.5	75.5	25	200	7000	0,005
85.220.0300	MK 3	62	28	179.5	98.5	34	500	5000	0,005
85.220.0400	MK 4	68	32	208.5	106	41	800	3800	0,005
85.220.0500	MK 5	87	38	263.5	134	51	2000	3000	0,005
85.220.0600	MK 6	102	50	341	159	57.5	3500	2600	0,01

> 85.225 Phantom

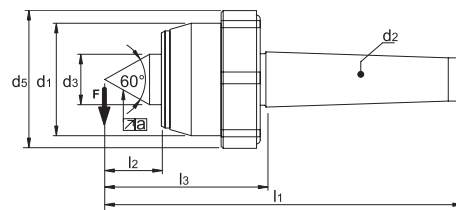
- NL Heavy Duty Meedraaiend Center, met verlengde punt, MK
 FR Heavy Duty Centre-pointe à grande capacité, avec pointe allongée, CM
 ES Contrapunto giratorio de grand capacidad, punta extendida, CM
 DE Mitlaufende Heavy Duty Drehbankspitze, mit Spitzenverlängerung, MK



Ref.	d1	d2	d3	d4	l1	l2	l3	F (Kg)	RPM	Tol.
85.225.0200	46	MK 2	20	10	149.5	35	85.5	140	7000	0,005
85.225.0300	62	MK 3	28	12	196.5	51	115.5	400	5000	0,005
85.225.0400	68	MK 4	32	14	222	54.5	119.5	500	3800	0,005
85.225.0500	87	MK 5	38	16	277.5	65	148	1200	3000	0,005
85.225.0600	102	MK 6	40	18	364.5	81	182.5	2500	2600	0,01

> **85.230 Phantom**

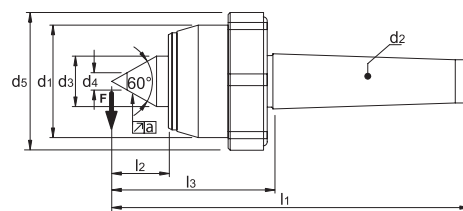
- NL Heavy Duty Meedraaiend Center, met afdrukmoer, MK
- FR Heavy Duty Contre-pointe à grande capacité, avec écrou de déblocage, CM
- ES Contrapunto giratorio de grand capacidad, con tuerca de extracción, CM
- DE Mitlaufende Heavy Duty Drehbankspitze, mit Abdrückmutter, MK



Ref.	d1	d2	d3	d5	l1	l3	l2	F (Kg)	RPM	Tol.
85.230.0200	44	MK 2	20	61	139.5	75.5	25	200	7000	0,005
85.230.0300	60	MK 3	28	75	179.5	98.5	34	500	5000	0,005
85.230.0400	66	MK 4	32	83	208.5	106	41	800	3800	0,005
85.230.0500	65	MK 5	38	104	263.5	134	51	2000	3000	0,005
85.230.0600	100	MK 6	50	122	341	159	57.5	3500	2600	0,01

> **85.232 Phantom**

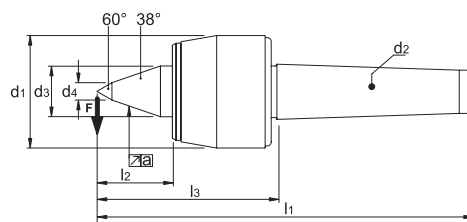
- NL Heavy Duty Meedraaiend Center met HM-punt, met afdrukmoer, MK
- FR Heavy Duty Contre-pointe à grande capacité avec pointe carbure, avec écrou de déblocage, CM
- ES Contrapunto giratorio de gran capacidad, para alta carga, con punta de MD, con tuerca de extracción, CM
- DE Mitlaufende Heavy Duty Drehbankspitze mit HM-Spitze, mit Abdrückmutter, MK



Ref.	d1	d2	d3	d4	d5	l1	l3	l2	F (Kg)	RPM	Tol.
85.232.0200	44	MK 2	20	11	61	139.5	75.5	25	120	7000	0,005
85.232.0300	60	MK 3	28	14	75	179.5	98.5	34	360	5000	0,005
85.232.0400	66	MK 4	32	14	83	108.5	106	41	500	3800	0,005
85.232.0500	85	MK 5	38	18	104	263.5	134	51	1000	3000	0,005
85.232.0600	100	MK 6	50	18	122	341	159	57.5	1800	2600	0,01

> **85.280 Phantom**

- NL Heavy Duty Meedraaiend Kopieercenter, MK
- FR Contre-pointe pour machines à copier, de grande capacité avec charge différentielle, CM
- ES Contrapunto giratorio coprador de gran capacidad, CM
- DE Mitlaufende Heavy Duty Drehbankspitze mit verlängerter Spitze, MK



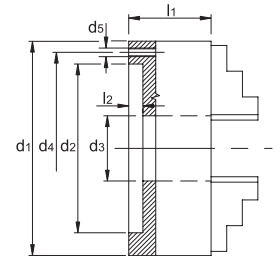
Ref.	d2	d3	l1	l3	l2	d1	d4	F (Kg)	RPM	Tol.
85.280.0300	MK 3	22	174	85	38	49	10	360	5000	0,005
85.280.0400	MK 4	30	207	98	46	63	11	500	4000	0,005
85.280.0500	MK 5	35	266	128	64	85	18	1000	3500	0,005





> 85.410 BISON

- NL Zelfcentrerende Drie-Klawwplaat, gietijzer, type 3204, DIN 6350
 FR Mandrin à 3 mors concentriques, fonte, type 3204, DIN 6350
 ES Plato de sujeción autocentrador de 3 garras, fundición, tipo 3204, DIN 6350
 DE Selbstzentrierende Dreibackenfutter, Gusseisen, Typ 3204, DIN 6350

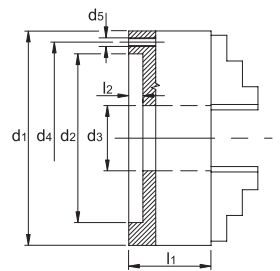


DIN
6350

Ref.	d1	l1	l2	d2	d3	d4	d5	1	2	3	4
85.410.0080	80	44	3	56	16	67	3x M6	85.850.0080	85.855.0080	85.866.0080	85.890.0100
85.410.0100	100	50	3	70	20	83	3x M8	85.850.0100	85.855.0100	85.868.0100	85.890.0200
85.410.0125	125	56	4	95	32	108	3x M8	85.850.0125	85.855.0125	85.868.0125	85.890.0200
85.410.0160	160	64,5	4	125	42	140	6x M10	85.850.0160	85.855.0160	85.868.0160	85.890.0300
85.410.0200	200	75	4	160	55	176	6x M10	85.850.0200	85.855.0200	85.868.0200	85.890.0300
85.410.0250	250	85	5	200	76	224	6x M12	85.850.0250	85.855.0250	85.868.0250	85.890.0400
85.410.0315	315	94	5	260	103	286	6x M16	85.850.0315	85.855.0315	85.868.0315	85.890.0400
85.410.0400	400	105	5	330	136	362	6x M16	85.850.0400	85.855.0400	85.868.0400	85.890.0500
85.410.0500	500	120	5	420	190	458	6x M16	85.850.0500	85.855.0500	85.868.0500	85.890.0600
85.410.0630	630	135	7	545	252	586	6x M16	85.850.0630	85.855.0630	85.868.0630	85.890.0600

> 85.420 BISON

- NL Zelfcentrerende Drie-Klawwplaat, staal, type 3504, DIN 6350
 FR Mandrin à 3 mors concentriques, acier, type 3504, DIN 6350
 ES Plato de sujeción autocentrador de 3 garras, acero, tipo 3504, DIN 6350
 DE Selbstzentrierende Dreibackenfutter, Stahl, Typ 3504, DIN 6350

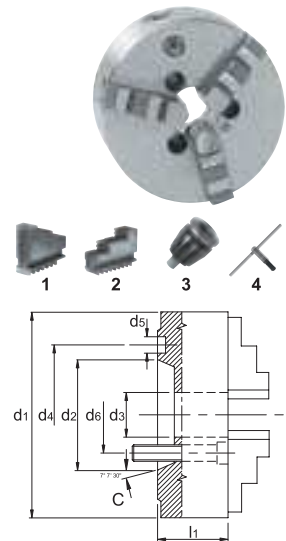


DIN
6350

Ref.	d1	l1	l2	d2	d3	d4	d5	1	2	3	4
85.420.0080	80	44	3	56	16	67	3x M6	85.850.0080	85.855.0080	85.868.0080	85.890.0100
85.420.0100	100	50	3	70	20	83	3x M8	85.850.0100	85.855.0100	85.868.0100	85.890.0200
85.420.0125	125	59,5	4	95	35	108	3x M8	85.850.0125	85.855.0125	85.868.0125	85.890.0200
85.420.0160	160	68	4	125	42	140	6x M10	85.850.0160	85.855.0160	85.868.0160	85.890.0300
85.420.0200	200	78	4	160	55	176	6x M10	85.850.0200	85.855.0200	85.868.0200	85.890.0300
85.420.0250	250	89	5	200	76	224	6x M12	85.850.0250	85.855.0250	85.868.0250	85.890.0400
85.420.0315	315	96,2	5	260	103	286	6x M16	85.850.0315	85.855.0315	85.868.0315	85.890.0400
85.420.0400	400	108	5	330	136	362	6x M16	85.850.0400	85.855.0400	85.868.0400	85.890.0500

> **85.421** **BISON**

NL Zelfcentrerende Drie-Klawwplaat, staal, type 3514, DIN 55026
 FR Mandrin à 3 mors concentriques, acier, type 3514, DIN 55026
 ES Plato de sujeción autocentrador de 3 garras, acero, tipo 3514, DIN 55026
 DE Selbstzentrierende Dreibackenfutter, Stahl, Typ 3514, DIN 55026

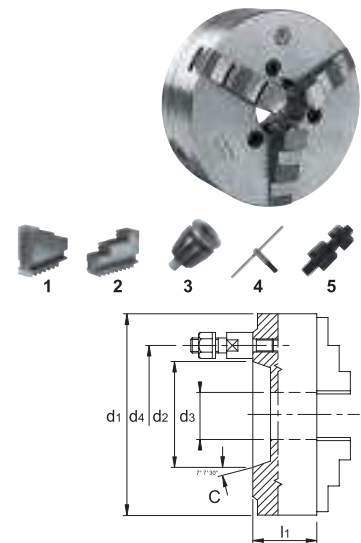


DIN
55026-B

Ref.	d1	C	l1	d2	d3	d6	d4	d5	1	2	3	4
85.421.1605	160	5	68	82.56	42	61.9	104.8	19.6	85.850.0160	85.855.0160	85.868.0160	85.890.0300
85.421.2005	200	5	78	82.56	42	61.9	104.8	19.6	85.850.0200	85.855.0200	85.868.0200	85.890.0300
85.421.2006	200	6	78	106.37	55	82.6	133.4	19.6	85.850.0200	85.855.0200	85.868.0200	85.890.0300
85.421.2505	250	5	89	82.56	76	61.9	104.8	19.6	85.850.0250	85.855.0250	85.868.0250	85.890.0400
85.421.2506	250	6	89	106.37	55	82.6	133.4	19.6	85.850.0250	85.855.0250	85.868.0250	85.890.0400
85.421.2508	250	8	89	139.71	76	111.1	171.4	19.6	85.850.0250	85.855.0250	85.868.0250	85.890.0400
85.421.3106	315	6	96.2	106.37	103	82.6	133.4	19.6	85.850.0315	85.855.0315	85.868.0315	85.890.0400
85.421.3108	315	8	96.2	139.71	80	111.1	171.4	19.6	85.850.0315	85.855.0315	85.868.0315	85.890.0400
85.421.4008	400	8	108	139.71	136	111.1	171.4	19.6	85.850.0400	85.855.0400	85.868.0400	85.890.0500
85.421.4011	400	11	108	196.86	130	165.1	235	19.6	85.850.0400	85.855.0400	85.868.0400	85.890.0500

> **85.422** **BISON**

NL Zelfcentrerende Drie-Klawwplaat, staal, type 3534, DIN 55027
 FR Mandrin à 3 mors concentriques, acier, type 3534, DIN 55027
 ES Plato de sujeción autocentrador de 3 garras, acero, tipo 3534, DIN 55027
 DE Selbstzentrierende Dreibackenfutter, Stahl, Typ 3534, DIN 55027



DIN
55027

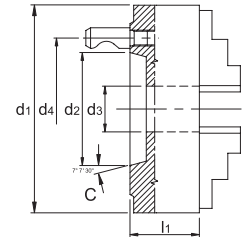
BAJO-NET

Ref.	d1	C	l1	d2	d3	d4	1	2	3	4	5
85.422.1203	125	3	59.5	53.97	32	75	85.850.0125	85.855.0125	85.868.0125	89.890.0200	85.992.0300 (3x)
85.422.1204	125	4	59.5	63.51	32	85	85.850.0125	85.855.0125	85.868.0125	85.890.0200	85.992.0400 (3x)
85.422.1604	160	4	68	63.51	42	85	85.850.0160	85.855.0160	85.868.0160	85.890.0300	85.992.0400 (3x)
85.422.1605	160	5	68	82.56	42	104.8	85.850.0160	85.855.0160	85.868.0160	85.890.0300	85.992.0500 (4x)
85.422.2005	200	5	78	82.56	55	104.8	85.850.0200	85.855.0200	85.868.0200	85.890.0300	85.992.0500 (4x)
85.422.2006	200	6	78	106.37	55	133.4	85.850.0200	85.855.0200	85.868.0200	85.890.0300	85.992.0600 (4x)
85.422.2506	250	6	89	106.37	76	133.4	85.850.0250	85.855.0250	85.868.0250	85.890.0400	85.992.0600 (4x)
85.422.2508	250	8	89	139.71	76	171.4	85.850.0250	85.855.0250	85.868.0250	85.890.0400	85.992.0800 (4x)
85.422.3106	315	6	96.2	106.37	103	133.4	85.850.0315	85.855.0315	85.868.0315	85.890.0400	85.992.0600 (4x)
85.422.3108	315	8	96.2	139.71	103	171.4	85.850.0315	85.855.0315	85.868.0315	85.890.0400	85.992.0800 (4x)
85.422.3111	315	11	111.7	196.86	103	235	85.850.0315	85.855.0315	85.868.0315	85.890.0400	85.992.1100 (6x)
85.422.4008	400	8	108	139.71	136	171.4	85.850.0400	85.855.0400	85.868.0400	85.890.0500	85.992.0800 (4x)
85.422.4011	400	11	108	196.86	136	235	85.850.0400	85.855.0400	85.868.0400	85.890.0500	85.992.1100 (6x)



> 85.423 BISON

- NL Zelfcentrerende Drie-Klawwplaat, staal, type 3544, DIN 55029
 FR Mandrin à 3 mors concentriques, acier, type 3544, DIN 55029
 ES Plato de sujeción autocentrador de 3 garras, acero, tipo 3544, DIN 55029
 DE Selbstzentrierende Dreibackenfutter, Stahl, Typ 3544, DIN 55029



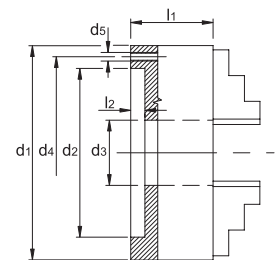
DIN
55029

CAM-
LOCK

Ref.	d1	C	l1	d2	d3	d4	1	2	3	4	5
85.423.1203	125	3	59.5	53.97	32	70.6	85.850.0125	85.855.0125	85.868.0125	85.890.0200	85.993.0300 (3x)
85.423.1204	125	4	59.5	63.51	32	82.6	85.850.0125	85.855.0125	85.868.0125	85.890.0200	85.993.0400 (3x)
85.423.1604	160	4	68	63.51	42	82.6	85.850.0160	85.855.0160	85.868.0160	85.890.0300	85.993.0400 (3x)
85.423.1605	160	5	68	82.56	42	104.8	85.850.0160	85.855.0160	85.868.0160	85.890.0300	85.993.0500 (6x)
85.423.2004	200	4	78	63.51	55	82.6	85.850.0200	85.855.0200	85.868.0200	85.890.0300	85.993.0400 (3x)
85.423.2005	200	5	78	82.56	55	104.8	85.850.0200	85.855.0200	85.868.0200	85.890.0300	85.993.0500 (6x)
85.423.2006	200	6	78	106.37	55	133.4	85.850.0200	85.855.0200	85.868.0200	85.890.0300	85.993.0600 (6x)
85.423.2506	250	6	89	106.37	76	133.4	85.850.0250	85.855.0250	85.868.0250	85.890.0400	85.993.0600 (6x)
85.423.2508	250	8	89	139.71	76	171.4	85.850.0250	85.855.0250	85.868.0250	85.890.0400	85.993.0800 (6x)
85.423.3106	315	6	96.2	106.37	103	133.4	85.850.0315	85.855.0315	85.868.0315	85.890.0400	85.993.0600 (6x)
85.423.3108	315	8	96.2	139.71	103	171.4	85.850.0315	85.855.0315	85.868.0315	85.890.0400	85.993.0800 (6x)
85.423.4008	400	8	108	139.71	136	171.4	85.850.0400	85.855.0400	85.868.0400	85.890.0500	85.993.0800 (6x)
85.423.4011	400	11	108	196.86	136	235	85.850.0400	85.855.0400	85.868.0400	85.890.0500	85.993.1100 (6x)

> 85.500 BISON

- NL Zelfcentrerende Vier-Klawwplaat, gietijzer, type 3604, DIN 6350
 FR Mandrin à 4 mors concentriques, fonte, type 3604, DIN 6350
 ES Plato de sujeción autocentrador de 4 garras, fundición, tipo 3604, DIN 6350
 DE Selbstzentrierende Vierbackenfutter, Gusseisen, Typ 3604, DIN 6350

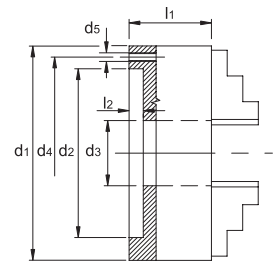


DIN
6350

Ref.	d1	l1	l2	d2	d3	d4	d5	1	2	3	4
85.500.0125	125	56	4	95	32	108	3x M8	85.851.0125	85.856.0125	85.866.0100	85.890.0200
85.500.0160	160	64.5	4	125	42	140	6x M10	85.851.0160	85.856.0160	85.866.0100	85.890.0300
85.500.0200	200	75	4	160	55	176	6x M10	85.851.0200	85.856.0200	85.866.0100	85.890.0300
85.500.0250	250	85	5	200	76	224	6x M12	85.851.0250	85.856.0250	85.866.0100	85.890.0400
85.500.0315	315	94	5	260	103	286	6x M16	85.851.0315	85.856.0315	85.866.0100	85.890.0400
85.500.0400	400	105	5	330	136	362	6x M16	85.851.0400	85.856.0400	85.866.0100	85.890.0500
85.500.0500	500	120	5	420	190	458	6x M16	85.851.0500	85.856.0500	85.866.0100	85.890.0600

> **85.510 BISON**

- NL Zelfcenterende Vier-Klauwplaat, staal, type 3704, DIN 6350
- FR Mandrin à 4 mors concentriques, acier, type 3704, DIN 6350
- ES Plato de sujeción autocentrador de 4 garras, acero, tipo 3704, DIN 6350
- DE Selbstzentrierende Vierbackenfutter, Stahl, Typ 3704, DIN 6350

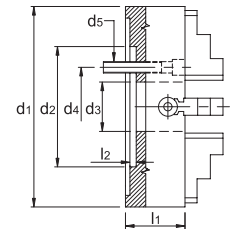


DIN 6350

Ref.	d1	l1	l2	d2	d3	d4	d5	1	2	3	4
85.510.0100	100	50	3	70	20	83	3x M8	85.851.0100	85.856.0100	85.866.0100	85.890.0200
85.510.0125	125	59.5	4	95	35	108	3x M8	85.851.0125	85.856.0125	85.866.0100	85.890.0200
85.510.0160	160	68	4	125	42	140	6x M10	85.851.0160	85.856.0160	85.866.0100	85.890.0300
85.510.0200	200	78	4	160	55	176	6x M10	85.851.0200	85.856.0200	85.866.0100	85.890.0300
85.510.0250	250	89	5	200	76	224	6x M12	85.851.0250	85.856.0250	85.866.0100	85.890.0400
85.510.0315	315	96.2	5	260	103	286	6x M16	85.851.0315	85.856.0315	85.866.0100	85.890.0400
85.510.0400	400	108	5	330	136	362	6x M16	85.851.0400	85.856.0400	85.866.0100	85.890.0500

> **85.600 BISON**

- NL Onafhankelijke Vier-Klauwplaat, diam. 85-160 mm staal (Bison type 4306), vanaf diam. 200 mm gietijzer (Bison type 4304)
- FR Mandrin à 4 mors indépendants, diam. 85-160 mm acier (type Bison 4306), à partir du diam. 200 mm fonte (type Bison 4304)
- ES Plato de 4 garras independientes, diám. 85-160 mm acero (tipo Bison 4306), desde diám. 200 mm fundición (tipo Bison 4304)
- DE 4-Backenfutter einzeln spannend, durchm. 85-160 mm Stahl (Bison Typ 4306), ab durchm. 200 mm Gusseisen (Bison type 4304)

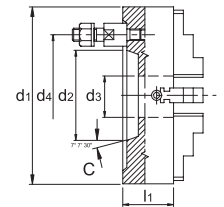


Ref.	d1	l1	l2	d2	d3	d4	d5	Bison
85.600.0085	83	40	5	62	25	72	4x M6	4306
85.600.0100	100	40	2.5	79.38	25	54	4x M8	4306
85.600.0200	200	80	5	110	50	82.6	4x M10	4304
85.600.0250	250	85	7	150	65	104.8	4x M12	4304
85.600.0315	315	95	7	175	80	133.4	4x M16	4304
85.600.0500	500	120	12	270	125	235	4x M20	4304
85.600.0630	630	140	12	270	160	235	4x M20	4304



> 85.602 BISON

- NL Onafhankelijke Vier-Klauwplaat, gietijzer, type 4334, DIN 55027
 FR Mandrin à 4 mors indépendants, fonte, type 4334, DIN 55027
 ES Plato de 4 garras independientes, fundición, tipo 4334, DIN 55027
 DE 4-Backenfutter einzeln spannend, Gusseisen, Typ 4334, DIN 55027

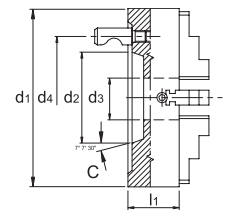


DIN 55027 BAJO-NET

Ref.	d1	C	l1	d2	d3	d4	1
85.602.2004	200	4	80	63.526	50	85	85.992.0400 (3x)
85.602.2005	200	5	80	82.578	50	104.8	85.992.0500 (4x)
85.602.2006	200	6	80	106.39	50	133.4	85.992.0600 (4x)
85.602.2505	250	5	85	82.578	65	104.8	85.992.0500 (4x)
85.602.2506	250	6	85	106.39	65	133.4	85.992.0600 (4x)
85.602.2508	250	8	85	139.734	65	171.4	85.992.0800 (4x)
85.602.3106	315	6	95	106.39	80	133.4	85.992.0600 (4x)
85.602.3108	315	8	95	139.734	80	171.4	85.992.0800 (4x)
85.602.3111	315	11	95	196.887	80	235	85.992.1100 (6x)
85.602.4006	400	6	105	106.39	100	133.4	85.992.0600 (4x)
85.602.4008	400	8	105	139.734	100	171.4	85.992.0800 (4x)
85.602.4011	400	11	105	196.887	100	235	85.992.1100 (6x)
85.602.5008	500	8	120	139.734	125	171.4	85.992.0800 (4x)
85.602.5011	500	11	120	196.887	125	235	85.992.1100 (6x)

> 85.603 BISON

- NL Onafhankelijke Vier-Klauwplaat, gietijzer, type 4344, DIN 55029
 FR Mandrin à 4 mors indépendants, fonte, type 4344, DIN 55029
 ES Plato de 4 garras independientes, fundición, tipo 4344, DIN 55029
 DE 4-Backenfutter einzeln spannend, Gusseisen, Typ 4344, DIN 55029

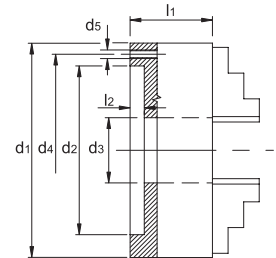


DIN 55029 CAM-LOCK

Ref.	d1	C	l1	d2	d3	d4	1
85.603.2004	200	4	80	63.526	50	82.6	85.993.0400
85.603.2005	200	5	80	82.578	50	104.8	85.993.0500
85.603.2006	200	6	80	106.39	50	133.4	85.993.0600
85.603.2505	250	5	85	82.578	65	104.8	85.993.0500
85.603.2506	250	6	85	106.39	65	133.4	85.993.0600
85.603.2508	250	8	85	139.734	65	171.4	85.993.0800
85.603.3106	315	6	95	106.39	80	133.4	85.993.0600
85.603.3108	315	8	95	139.734	80	171.4	85.993.0800
85.603.3111	315	11	95	196.887	80	235	85.993.1100
85.603.4006	400	6	105	106.39	100	133.4	85.993.0600
85.603.4008	400	8	105	139.734	100	171.4	85.993.0800
85.603.4011	400	11	105	196.887	100	235	85.993.1100
85.603.5008	500	8	120	139.734	125	171.4	85.993.0800
85.603.5011	500	11	120	196.887	125	235	85.993.1100

> **85.670** **BISON**

- NL **Gecombineerde Vier-Klauwplaat, gietijzer, type 4605, DIN 6350**
- FR **Mandrin à 4 mors combinés, fonte, type 4605, DIN 6350**
- ES **Plato de 4 garras combinado, fundición, tipo 4605, DIN 6350**
- DE **Kombinierte Vierbackenfutter, Gusseisen, Typ 4605, DIN 6350**

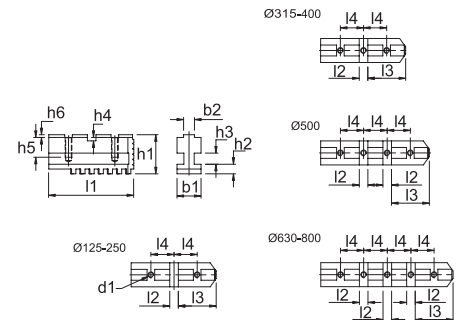


DIN 6350

Ref.	d1	l1	l2	d2	d3	d4	d5
85.670.0200	200	96	5.5	160	55	176	6x M10
85.670.0250	250	102	6	200	76	224	6x M12
85.670.0315	315	117	6	260	103	286	6x M16

> **85.801** **BISON**

- NL **Harde Grondbekken, set à 3 stuks, voor 3-klauwplaat type 32**, 35****
- FR **Jeu de semelles, Jeu de 3 pièces, pour mandrin à 3 mors type 32**, 35****
- ES **Garras duras, juego de 3 piezas, Para plato de 3 garras tipo 32**, 35****
- DE **Harte Grundbacken, Satz von 3 Stück, für 3-Backenfutter Typ 32**, 35****

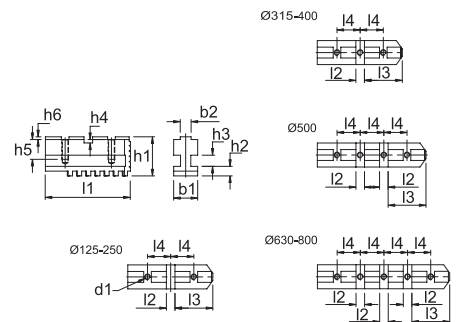


Ref.	d1	l1	b1	h1	h2	h3	b2	l2	l3	h4	l4	h5	d5	h6
85.801.0125	125	54	20	28	8	8	7.94	12.69	22.6	4	16	13.5	M8	3.2
85.801.0160	160	65	20	29	8	8	7.94	12.69	28.6	4	19.05	14	M10	3.2
85.801.0200	200	79	25	33	9	10	7.94	12.69	34.9	4	22.25	14	M10	3.2
85.801.0250	250	92	28	36	11	12	12.7	19.04	39.7	4	27	16	M12	3.2
85.801.0315	315	110	32	40	12.7	12	12.7	19.04	47.6	4	31.75	16	M12	3.2
85.801.0400	400	130	36	49	15	14	12.7	19.04	57.1	7.2	38.1	22	M16	3.2
85.801.0500	500	166	40	54	16	14	12.7	19.04	57.1	7.2	38.1	32.5	M20	3.2
85.801.0630	630	210	50	54.5	16	14	12.7	19.04	57.1	7.2	38.1	32.5	M20	3.2



> 85.802 BISON

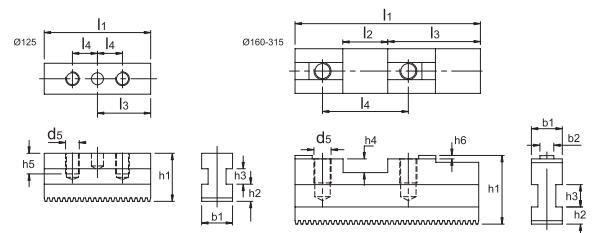
- NL **Harde Grondbekken, set à 4 stuks, voor 4-klawplaat type 36**, 37****
 FR **Jeu de semelles, Jeu de 4 pièces, pour mandrin à 4 mors type 36**, 37****
 ES **Garras duras, juego de 4 piezas, Para plato de 4 garras tipo 36**, 37****
 DE **Harte Grundbacken, Satz von 4 Stück, für 4-Backenfutter Typ 36**, 37****



Ref.	d1	l1	b1	h1	h2	h3	b2	l2	l3	h4	l4	h5	d5	h6
85.802.0125	125	54	20	28	8	8	7.94	12.69	22.6	4	16	13.5	M8	3.2
85.802.0160	160	65	20	29	8	8	7.94	12.69	28.6	4	19.05	14	M10	3.2
85.802.0200	200	79	25	33	9	10	7.94	12.69	34.9	4	22.25	14	M10	3.2
85.802.0250	250	92	28	36	11	12	12.7	19.04	39.7	4	27	16	M12	3.2
85.802.0315	315	110	32	40	12.7	12	12.7	19.04	47.6	4	31.75	16	M12	3.2
85.802.0400	400	130	36	49	15	14	12.7	19.04	57.1	7.2	38.1	22	M16	3.2
85.802.0500	500	166	40	54	16	14	12.7	19.04	57.1	7.2	38.1	32.5	M20	3.2

> 85.805 BISON

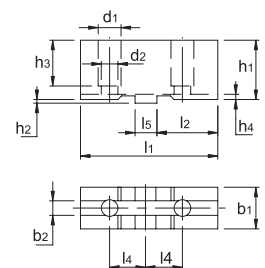
- NL **Harde Grondbekken, set à 3 stuks, voor 3-klawplaat type 3404**
 FR **Jeu de semelles, Jeu de 3 pièces, pour mandrin à 3 mors type 3404**
 ES **Garras duras, juego de 3 piezas, Para plato de 3 garras tipo 3404**
 DE **Harte Grundbacken, Satz von 3 Stück, für 3-Backenfutter Typ 3404**



Ref.	d1	l1	b1	h1	h2	h3	b2	l2	l3	h4	l4	h5	d5	h6
85.805.0125	125	51.5	14	21.5	6.5	7		5	25.75	3	10	10	M6	2.5
85.805.0160	160	65	20	26.5	7.5	9	8	18	28	5	32	12	M8	2.5
85.805.0200	200	85	22	28.5	8	9	10	20	42	5.5	40	12	M8	2.5
85.805.0250	250	87.5	26	36	10	11	12	20	41.5	5.5	40	17	M12	3
85.805.0315	315	125	32	42	12	14	12	26	69	7	54	17	M12	3

> 85.811 BISON

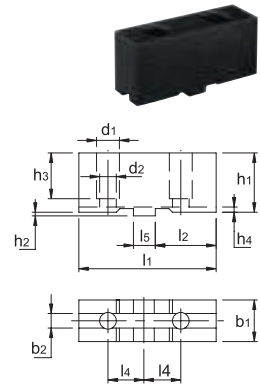
- NL **Zachte Opschroefbekken, set à 3 stuks, voor 3-klawplaat type 32**, 35****
 FR **Jeu de mors doux, Jeu de 3 pièces, pour mandrin à 3 mors type 32**, 35****
 ES **Garras de acoplado blandas, juego de 3 piezas, Para plato de 3 garras tipo 32**, 35****
 DE **Weiche Aufschraubbacken, Satz von 3 Stück, für 3-Backenfutter Typ 32**, 35****



Ref.	d1	l1	b1	h1	b2	h2	h4	l5	l2	d2	d3	h3	l4	l3
85.811.0125	125	64	22	38.5	7.95	4	3.2	12.69	25	9	15	26	16	15
85.811.0160	160	78	25	41.5	7.95	4	3.2	12.69	34	11	18	29	19.05	21
85.811.0200	200	90	27	43.5	7.95	4	3.2	12.69	40	11	18	31	22.25	24
85.811.0250	250	106	32.5	51.5	12.71	4	3.2	19.04	45	14	20	36	27	27.5
85.811.0315	315	120	37	55	12.71	4	3.2	19.04	53	14	20	40	31.75	30.7
85.811.0400	400	140	42	64.5	12.71	4	6.3	19.04	63	18	26	45.5	38.1	34.4
85.811.0500	500	140	42	74.5	12.71	4	6.3	19.04	63	22	33	56	38.1	34.4
85.811.0630	630	160	52	82	12.71	4	6.3	19.04	63	22	33	64	38.1	34.4

> **85.812** **BISON**

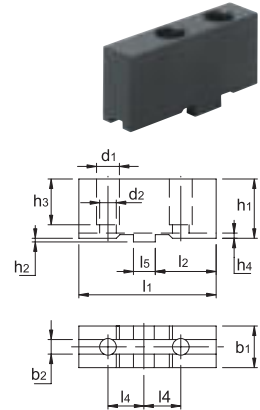
- NL Zachte Opschroefbekken, set à 4 stuks, voor 4-klawplaat type 36**, 37**
- FR Jeu de mors doux, Jeu de 4 pièces, pour mandrin à 4 mors type 36**, 37**
- ES Garras de acoplado blandas, juego de 4 piezas, Para plato de 4 garras tipo 36**, 37**
- DE Weiche Aufschraubbacken, Satz von 4 Stück, für 4-Backenfutter Typ 36**, 37**



Ref.	d1	l1	b1	h1	b2	h2	h4	l5	l2	d2	d3	h3	l4	l3
85.812.0125	125	64	22	38.5	7.95	4	3.2	12.69	25	9	15	26	16	15
85.812.0160	160	78	25	41.5	7.95	4	3.2	12.69	34	11	18	29	19.05	21
85.812.0200	200	90	27	43.5	7.95	4	3.2	12.69	40	11	18	31	22.25	24
85.812.0250	250	106	32.5	51.5	12.71	4	3.2	19.04	45	14	20	38	27	27.5
85.812.0315	315	120	37	55	12.71	4	3.2	19.04	53	14	20	40	31.75	30.7
85.812.0400	400	140	42	64.5	12.71	4	6.3	19.04	63	18	26	45.5	38.1	34.4
85.812.0500	500	140	42	74.5	12.71	4	6.3	19.04	63	22	33	56	38.1	34.4

> **85.813** **BISON**

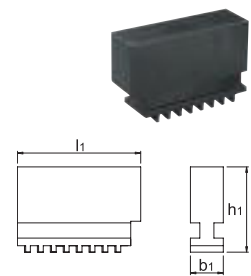
- NL Zachte Opschroefbekken, set à 3 stuks, voor 3-klawplaat type 3404
- FR Jeu de mors doux, Jeu de 3 pièces, pour mandrin à 3 mors type 3404
- ES Garras de acoplado blandas, juego de 3 piezas, Para plato de 3 garras tipo 3404
- DE Weiche Aufschraubbacken, Satz von 3 Stück, für 3-Backenfutter Typ 3404



Ref.	d1	l1	b1	h1	b2	h2	h4	l2	l5	d2	d3	h3
85.813.0125	125	55	20	30	14	1.5	5	25	5	6.4	10.4	24
85.813.0160	160	85	20	40	8	4.5	3	35	18	8.4	13.5	26.5
85.813.0200	200	105	22	50	10	5	3	40	20	8.4	13.5	35
85.813.0250	250	125	30	55	12	5	3.5	60	20	13	19	41
85.813.0315	315	145	35	60	12	6	3.5	60	26	13	19	38

> **85.820** **BISON**

- NL Zachte Blokbekken, set à 3 stuks, voor 3-klawplaat type 32**, 35**
- FR Jeu de mors doux, Jeu de 3 pièces, pour mandrin à 3 mors type 32**, 35**
- ES Garras blandas, juego de 3 piezas, Para plato de 3 garras tipo 32**, 35**
- DE Weiche Blockbacken, Satz von 3 Stück, für 3-Backenfutter Typ 32**, 35**



Ref.	d1	l1	b1	h1
85.820.0080	80	32	11	28
85.820.0100	100	42	15	32
85.820.0125	125	51	20	40
85.820.0160	160	70	20	53
85.820.0200	200	85	25	54

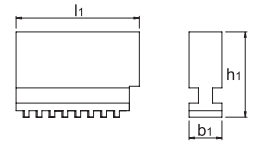
Ref.	d1	l1	b1	h1
85.820.0250	250	105	28	63
85.820.0315	315	125	32	73
85.820.0400	400	145	36	92
85.820.0500	500	180	40	100
85.820.0630	630	225	50	110





> 85.821 BISON

- NL Zachte Blokbekken, set à 4 stuks, voor 4-klawwplaat type 36**, 37**
 FR Jeu de mors doux, Jeu de 4 pièces, pour mandrin à 4 mors type 36**, 37**
 ES Garras blandas, juego de 4 piezas, Para plato de 4 garras tipo 36**, 37**
 DE Weiche Blockbacken, Satz von 4 Stück, für 4-Backenfutter Typ 36**, 37**

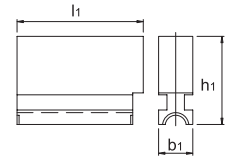


Ref.	d1	l1	b1	h1
85.821.0125	125	51	20	40
85.821.0160	160	70	20	53
85.821.0200	200	85	25	54
85.821.0250	250	105	28	63

Ref.	d1	l1	b1	h1
85.821.0315	315	125	32	73
85.821.0400	400	145	36	92
85.821.0500	500	180	40	100

> 85.823 BISON

- NL Zachte Blokbekken, set à 4 stuks, voor 4-klawwplaat type 4605
 FR Jeu de mors doux, Jeu de 4 pièces, pour mandrin à 4 mors type 4605
 ES Garras blandas, juego de 4 piezas, Para plato de 4 garras tipo 4605
 DE Weiche Blockbacken, Satz von 4 Stück, für 4-Backenfutter Typ 4605

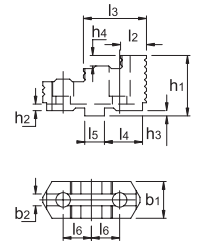


Ref.	d1	l1	b1	h1
85.823.0200	200	85	25	58
85.823.0250	250	91	28	61

Ref.	d1	l1	b1	h1
85.823.0315	315	125	32	73

> 85.840 BISON

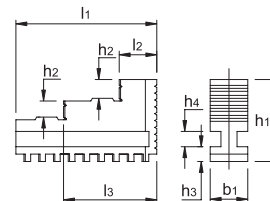
- NL Harde Omkeerbare Opzetbekken, set à 3 stuks, voor 3-klawwplaat type 32**, 35**
 FR Mors rapportés durs réversibles, Jeu de 3 pièces, pour mandrin à 3 mors type 32**, 35**
 ES Garras superiores reversibles duras, juego de 3 piezas, Para plato de 3 garras tipo 32**, 35**
 DE Harte, umkehrbare Aufsatzbacken, Satz von 3 Stück, für 3-Backenfutter Typ 32**, 35**



Ref.	d1	l1	b1	h1	b2	h2	h5	l5	l4	l2	l3	l6	h4
85.840.0125	125	56	22	38.5	7.95	4	3.2	12.69	22.6	14.5	35	16	8
85.840.0160	160	67	25	41.5	7.95	4	3.2	12.69	28.6	18	41.5	19.05	8.5
85.840.0200	200	80	27	43.5	7.95	4	3.2	12.69	34.9	21.5	51	22.25	9.5
85.840.0250	250	95	32.5	51.5	12.71	4	3.2	19.04	39.7	24.5	59	27	12
85.840.0315	315	110	37	55	12.71	4	3.2	19.04	47.6	26.5	68	31.75	13
85.840.0400	400	127	42	64.5	12.71	4	6.3	19.04	57.1	27	76.5	38.1	13.5
85.840.0500	500	127	42	74.5	12.71	4	6.3	19.04	57.1	50	88	38.1	17
85.840.0630	630	127	52	82	12.71	4	6.3	19.04	57.1	51	89	38.1	21

> 85.850 **BISON**

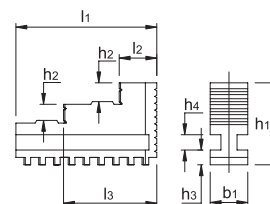
- NL Harde naar buiten getrapte Bekken (Boorbekken), set à 3 stuks, voor 3-klauwplaat type 32**, 35**
- FR Mors durs à l'endroit, Jeu de 3 pièces, pour mandrin à 3 mors type 32**, 35**
- ES Garras duras exteriores, juego de 3 piezas, Para plato de 3 garras tipo 32**, 35**
- DE Harte, nach außen gestufte Backen (Bohrbacken), Satz von 3 Stück, für 3-Backenfutter Typ 32**, 35**



Ref.	d1	l1	b1	h1	h3	h4	h2	l2	l3
85.850.0080	80	32	11	28	6	6	6	9.5	21
85.850.0100	100	42	15	32	6	6	7	12	27.5
85.850.0125	125	51	20	40	8	8	8	13	33.5
85.850.0160	160	70	20	53	8	8	10	22	47.5
85.850.0200	200	85	25	54	10	10	12	23	57
85.850.0250	250	105	28	63	11	12	14	28	69.5
85.850.0315	315	125	32	73	12.7	12	18	34.5	83
85.850.0400	400	145	36	92	15	14	22	36	99
85.850.0500	500	180	40	100	16	14	26	50	119.5
85.850.0630	630	225	50	110	16	14	28	66	149

> 85.851 **BISON**

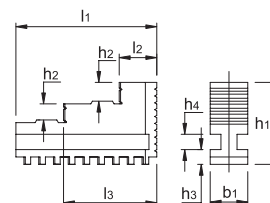
- NL Harde naar buiten getrapte Bekken (Boorbekken), set à 4 stuks, voor 4-klauwplaat type 36**, 37**
- FR Mors durs à l'endroit, Jeu de 4 pièces, pour mandrin à 4 mors type 36**, 37**
- ES Garras duras exteriores, juego de 4 piezas, Para plato de 4 garras tipo 36**, 37**
- DE Harte, nach außen gestufte Backen (Bohrbacken), Satz von 4 Stück, für 4-Backenfutter Typ 36**, 37**



Ref.	d1	l1	b1	h1	h3	h4	h2	l2	l3
85.851.0125	125	51	20	40	8	8	8	13	33.5
85.851.0160	160	70	20	53	8	8	10	22	47.5
85.851.0200	200	85	25	54	10	10	12	23	57
85.851.0250	250	105	28	63	11	12	14	28	69.5
85.851.0315	315	125	32	73	12.7	12	18	34.5	83
85.851.0400	400	145	36	92	15	14	22	36	99
85.851.0500	500	180	40	100	16	14	26	50	119.5

> 85.855 **BISON**

- NL Harde naar binnen getrapte Bekken (Draaibekken), set à 3 stuks, voor 3-klauwplaat type 32**, 35**
- FR Mors durs à l'envers, Jeu de 3 pièces, pour mandrin à 3 mors type 32**, 35**
- ES Garras duras interiores, juego de 3 piezas, Para plato de 3 garras tipo 32**, 35**
- DE Harte, nach innen gestufte Backen (Drehbacken), Satz von 3 Stück, für 3-Backenfutter Typ 32**, 35**



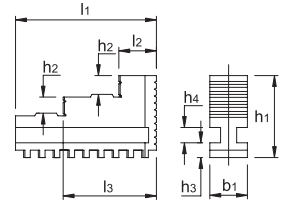
Ref.	d1	l1	b1	h1	h3	h4	h2	l2	l3
85.855.0080	80	32	11	28	6	6	6	9.5	21
85.855.0100	100	42	15	32	6	6	7	11	27
85.855.0125	125	51	20	40	8	8	8	13	33.5
85.855.0160	160	70	20	53	8	8	10	19	45
85.855.0200	200	85	25	54	10	10	12	23	57
85.855.0250	250	105	28	63	11	12	14	28	69.5
85.855.0315	315	125	32	73	12.7	12	18	34.5	83
85.855.0400	400	145	36	92	15	14	22	36	99
85.855.0500	500	180	40	100	16	14	26	50	119.5
85.855.0630	630	225	50	110	16	14	28	66	149





> 85.856 BISON

- NL **Harde naar binnen getrapte Bekken (Draaibekken), set à 4 stuks, voor 4-klauwplaat type 36**, 37****
 FR **Mors durs à l'envers, Jeu de 4 pièces, pour mandrin à 4 mors type 36**, 37****
 ES **Garras duras interiores, juego de 4 piezas, Para plato de 4 garras tipo 36**, 37****
 DE **Harte, nach innen gestufte Backen (Drehbacken), Satz von 4 Stück, für 4-Backenfutter Typ 36**, 37****



Ref.	d1	l1	b1	h1	h3	h4	h2	l2	l3
85.856.0100	100	42	15	32	6	6	7	11	27
85.856.0125	125	51	20	40	8	8	8	13	33.5
85.856.0160	160	70	20	53	8	8	10	19	45
85.856.0200	200	85	25	54	10	10	12	23	57
85.856.0250	250	105	28	63	11	12	14	28	69.5
85.856.0315	315	125	32	73	12.7	12	18	34.5	83
85.856.0400	400	145	36	92	15	14	22	36	99
85.856.0500	500	180	40	100	16	14	26	50	119.5

> 85.866 BISON

- NL **Rondsel, voor gietijzeren klauwplaat type 32**, 36****
 FR **Pignon, pour mandrin fonte type 32**, 36****
 ES **Piñón, Para plato de sujeción fundición tipo 32**, 36****
 DE **Ritzel, für gusseisen Backenfutter Typ 32**, 36****



Ref.	d1
85.866.0080	80
85.866.0100	100
85.866.0125	125
85.866.0160	160
85.866.0200	200

Ref.	d1
85.866.0250	250
85.866.0315	315
85.866.0400	400
85.866.0500	500
85.866.0630	630

> 85.868 BISON

- NL **Rondsel, voor stalen klauwplaat type 35**, 37****
 FR **Pignon, pour mandrin acier type 35**, 37****
 ES **Piñón, Para plato de sujeción acero tipo 35**, 37****
 DE **Ritzel, für Stahlen Backenfutter Typ 35**, 37****



Ref.	d1
85.868.0125	125
85.868.0160	160
85.868.0200	200

Ref.	d1
85.868.0250	250
85.868.0315	314
85.868.0400	400

> 85.890 BISON

- NL **Klauwplaatsleutel**
 FR **clé à mandrin**
 ES **Llave para platos**
 DE **Spannschlüssel**

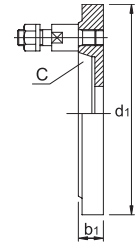


Ref.	Nr.	sw	l1	h1	Ø mm
85.890.0100	1	6	100	60	80
85.890.0200	2	9	140	60	100/125
85.890.0300	3	11	215	80	160/200
85.890.0400	4	14	310	100	250/315

Ref.	Nr.	sw	l1	h1	Ø mm
85.890.0500	5	17	400	120	400
85.890.0600	6	19	450	140	500/630
85.890.0700	7	19	650	140	800

> 85.961 **BISON**

- NL Klauwplaatflens, gietijzer, Halfbewerkte gereedschapshouder, type 8232, DIN 55027
- FR Faux-plateau, fonte, Mandrin porte-outils non fini, type 8232, DIN 55027
- ES Contraplato, fundición, Piezas brutas para arboles de taladrar, tipo 8232, DIN 55027
- DE Spannfutterflansche, Gusseisen, Werkzeughalter-Rohling, Typ 8232, DIN 55027



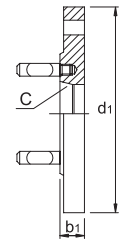
DIN 55027 BAJO-NET

Ref.	d1	C	d3	b1
85.961.1003	100	3	102	18
85.961.1203	125	3	127	19.5
85.961.1204	125	4	127	19.5
85.961.1603	160	3	162	24
85.961.1604	160	4	162	24
85.961.1605	160	5	162	24
85.961.2004	200	4	203	38
85.961.2005	200	5	203	38
85.961.2006	200	6	203	33
85.961.2506	250	6	253	50

Ref.	d1	C	d3	b1
85.961.2508	250	8	253	46
85.961.3106	315	6	318	33
85.961.3108	315	8	318	55
85.961.3111	315	11	318	47
85.961.4008	400	8	405	43
85.961.4011	400	11	405	47
85.961.5008	500	8	505	45
85.961.5011	500	11	505	45
85.961.6311	630	11	635	45
85.961.6315	630	15	635	56

> 85.962 **BISON**

- NL Klauwplaatflens, gietijzer, Halfbewerkte gereedschapshouder, type 8242, DIN 55029
- FR Faux-plateau, fonte, Mandrin porte-outils non fini, type 8242, DIN 55029
- ES Contraplato, fundición, Piezas brutas para arboles de taladrar, tipo 8242, DIN 55029
- DE Spannfutterflansche, Gusseisen, Werkzeughalter-Rohling, Typ 8242, DIN 55029



DIN 55029 CAM-LOCK

Ref.	d1	C	d3	b1
85.962.1003	100	3	102	28
85.962.1203	125	3	127	26
85.962.1204	125	4	127	26
85.962.1603	160	3	162	26
85.962.1604	160	4	162	29
85.962.1605	160	5	162	29
85.962.2004	200	4	203	44
85.962.2005	200	5	203	50
85.962.2006	200	6	203	35
85.962.2506	250	6	253	49

Ref.	d1	C	d3	b1
85.962.2508	250	8	253	49
85.962.3106	315	6	318	70
85.962.3108	315	8	318	55
85.962.3111	315	11	318	55
85.962.4008	400	8	405	43
85.962.4011	400	11	405	75
85.962.5008	500	8	505	46
85.962.5011	500	11	505	72
85.962.6311	630	11	635	72
85.962.6315	630	15	635	60

> 85.992 **BISON**

- NL Klauwplaatpen, voor DIN 55027 (Bajonet)
- FR Tenon de fixation, pour DIN 55027 (Baïonnette)
- ES Tornillo de fijación, para DIN 55027 (bayoneta)
- DE Camloc Bolzen, für DIN 55027 (Bajonet)



Ref.	C	d1	#
85.992.0300	3	M10x34	3
85.992.0400	4	M10x39	3
85.992.0500	5	M10x43	4

Ref.	C	d1	#
85.992.0600	6	M12x50	4
85.992.0800	8	M16x60	4
85.992.1100	11	M20x75	6





> 85.993 **BISON**



NL Klauwplaatpen, voor DIN 55029 (Camlock)
 FR Tenon de fixation, pour DIN 55029 (Camlock)
 ES Tornillo de fijación, para DIN 55029 (Camlock)
 DE Camloc Bolzen, für DIN 55029 (Camlock)

Ref.	C	d1	#
85.993.0300	3	M10x1x35	3
85.993.0400	4	M10x1x37	3
85.993.0500	5	M12x1x43	6

Ref.	C	d1	#
85.993.0600	6	M16x1,5x49	6
85.993.0800	8	M20x1,5x55,5	6
85.993.1100	11	M22x1,5x67	6



1 SC



1 HSS (+E)



2



3 SC



3 HSS-E



4



5



6



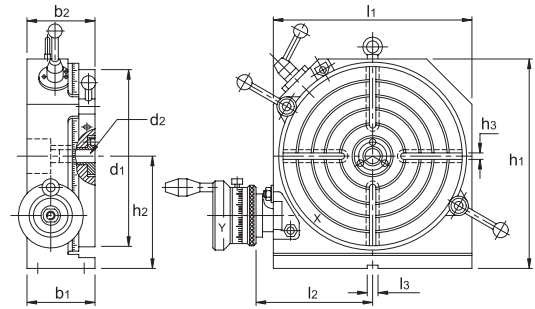
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8

> **87.110** **BISON**

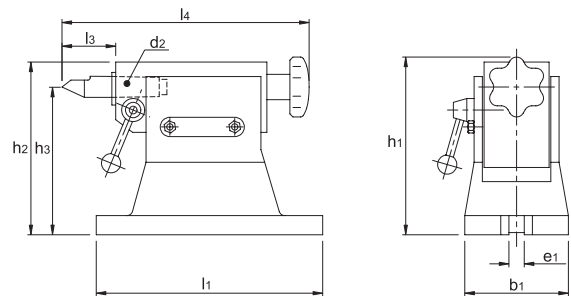
NL Rondverdeeltafel, type 5859
 FR Plateau diviseur, type 5859
 ES Plato divisor, tipo 5859
 DE Rundtische, Typ 5859



Ref.	d1	x:y	h1	l1	b1	l3	h2	h3	b2	l2	d2
87.110.0160	160	1:60	225	200	90	14	125	10	96	127	3
87.110.0200	200	1:60	270	240	95	14	150	10	98	147	3
87.110.0250	250	1:90	318	285	115	18	175	12	115	175	3
87.110.0320	320	1:90	374	348	115	18	200	12	120	207	3
87.110.0400	400	1:90	465	430	125	18	250	14	135	248	4

> **87.250** **BISON**

NL Tegencentra, type 5819
 FR Contre-pointe, type 5819
 ES Contrapunto, tipo 5819
 DE Reitstock, Typ 5819



Ref.	h3	l1	b1	h1 max	e1 (H7)	l3	h2	l4	d2
87.250.0100	95-130	195	100	183	14	40-70	155	335	2
87.250.0125	130-170	250	120	223	18	50-90	200	409	3

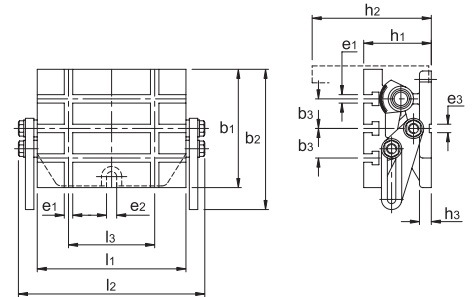
Ref.	h3	l1	b1	h1 max	e1 (H7)	l3	h2	l4	d2
87.250.0160	170-200	280	142	253	18	50-90	230	433	3
87.250.0200	220-250	300	164	303	18	60-100	285	465	4





> 87.400 BISON

NL Zwenkbare Opspantafel, type 5150
 FR Table de bridage articulée, type 5150
 ES Mesa de fijación basculante, tipo 5150
 DE Schwenkbare Spanntische, Typ 5150

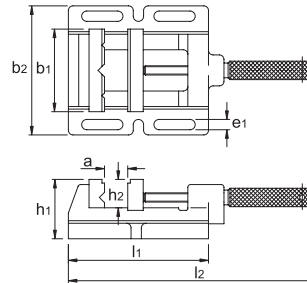
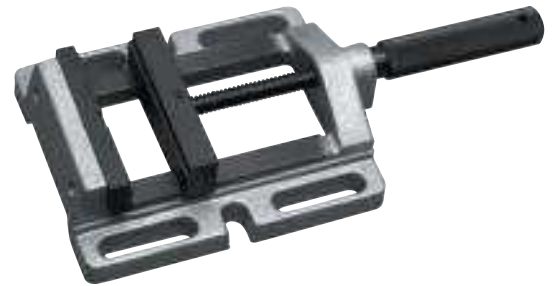


Ref.	b1	l1	l2	b2	b3	e1 N6	l3	e2	h1	h2	h3	e3
87.400.0200	200	250	324	236	50	12	126	18	111	201	22	16

Ref.	b1	l1	l2	b2	b3	e1 N6	l3	e2	h1	h2	h3	e3
87.400.0250	250	315	405	306	63	14	160	18	127	252	25	18

> 88.150 BISON

NL Boorklem, type 6543
 FR Etau machine, type 6543
 ES Mordaza para taladros, tipo 6543
 DE Bohrschraubstock, Typ 6543

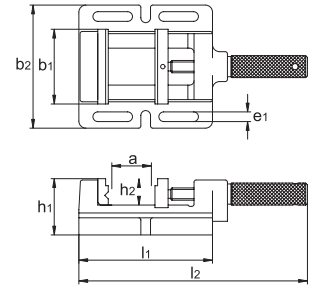


Ref.	b1	b2	l1	h1	l2	a max	h2	e1 N6	Max daN
88.150.0085	85	140	152	64	265	70	30	11	400
88.150.0100	100	152	170	64	285	85	30	13.5	500

Ref.	b1	b2	l1	h1	l2	a max	h2	e1 N6	Max daN
88.150.0120	120	176	212	64	360	120	30	13.5	650
88.150.0150	150	208	262	66	442	150	38	13.5	800

> **88.152** **INTERNATIONAL TOOLS**

NL Boorklem
 FR Etai machine
 ES Mordaza para taladros
 DE Bohrschraubstock

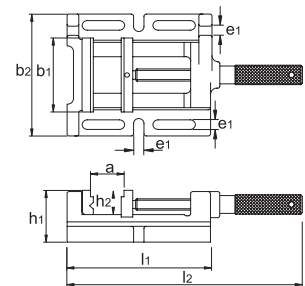


Ref.	b1	b2	a max	l1	l2	h1	h2	e1
88.152.0085	85	143	70	157	238	54	30	45x12,5
88.152.0100	100	152	95	176	280	60	30	49x14

Ref.	b1	b2	a max	l1	l2	h1	h2	e1
88.152.0120	120	178	105	220	340	60	35	64x14
88.152.0150	150	195	140	229	380	77	39	75x15

> **88.154** **INTERNATIONAL TOOLS**

NL Boorklem, met 3 opspanmogelijkheden
 FR Etai machine, 3 positions
 ES Mordaza para taladros, 3 posiciones
 DE Bohrschraubstock, mit 3 Aufspannmöglichkeiten



Ref.	b1	b2	a max	l1	l2	h1	h2
88.154.0100	100	158	95	189	275	64	30

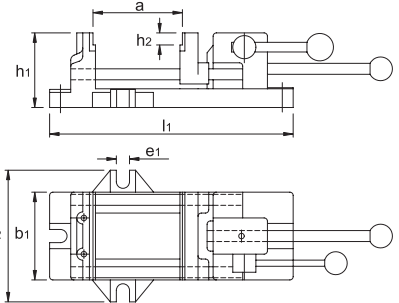
Ref.	b1	b2	a max	l1	l2	h1	h2





> 88.160 BISON

- NL Snelspanmachineklem, type 6540
 FR Etou à came à serrage rapide, type 6540
 ES Mordaza mecánica de fijación rápida, tipo 6540
 DE Schnellspan-Bohrerschraubstöcke, Typ 6540

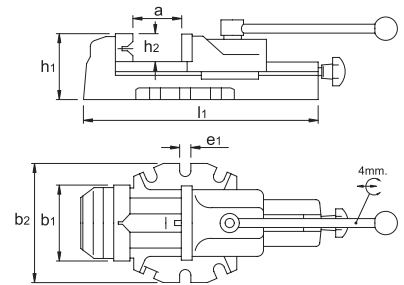


Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.160.0100	100	160	85	293	125	16.5	14	500
88.160.0125	125	185	90	327	150	16.5	14	700

Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.160.0160	160	224	95	380	160	16.5	18	800

> 88.170 BISON

- NL Snelspanmachineklem, type 6542
 FR Etou à came à serrage rapide, type 6542
 ES Mordaza mecánica de fijación rápida, tipo 6542
 DE Schnellspan-Bohrerschraubstöcke, Typ 6542

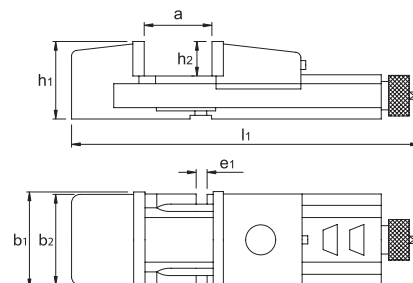


Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.170.0080	80	140	70	220	80	30	14	800

Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.170.0100	100	165	80	270	100	35	14	1200

> 88.200 **BISON**

- NL Snelspanmachineklem, type 6517
- FR Etou à came à serrage rapide, type 6517
- ES Mordaza mecánica de fijación rápida, tipo 6517
- DE Schnellspan-Bohrerschraubstöcke, Typ 6517

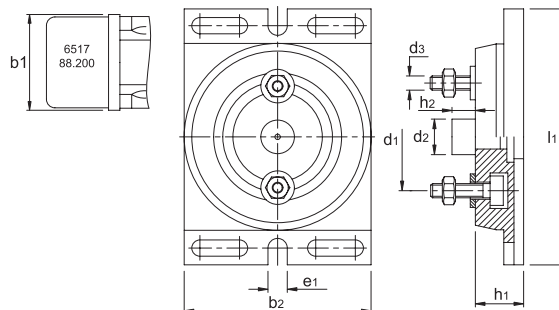


Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.200.0100	100	98	85	340	125	32	14	1800
88.200.0125	125	122	103	405	160	40	14	2500

Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.200.0160	160	156	125	505	200	50	18	4200
88.200.0200	200	194	150	666	250	63	18	6200

> 88.205 **BISON**

- NL Draaiplaat, type 6587, met gradenverdeling, voor snelspanmachineklem 88.200
- FR Base tournante, type 6587, avec graduation des degrés, pour étaux machine 88.200
- ES Base giratoria, tipo 6587, con graduación, para mordazas mecánicas de fijación rápida 88.200
- DE Dreibackenfutter, Typ 6587, mit Gradeinteilung, Für Maschinenschraubstöcke 88.200



Ref.	b1	b2	d1	h1	l1	d3	d2	h2	e1 N6
88.205.0100	100	140	83	28	195	M12	25	18	14
88.205.0125	125	175	103	28	236	M12	25	18	14

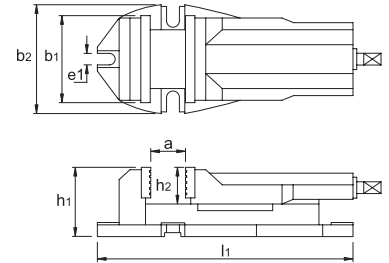
Ref.	b1	b2	d1	h1	l1	d3	d2	h2	e1 N6
88.205.0160	160	224	130	34	294	M16	30	20	18
88.205.0200	200	264	165	34	345	M16	30	20	18





> 88.230 **BISON**

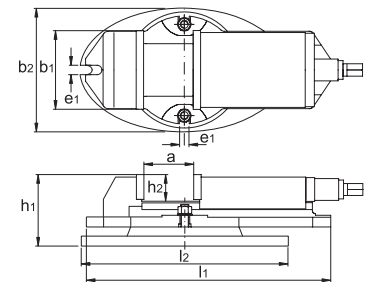
NL **Machinespanklem, type 6512**
 FR **Etau de fraisage, type 6512**
 ES **Mordaza mecánica, tipo 6512**
 DE **Maschinenschraubstöcke, Typ 6512**



Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.230.0100	100	156	84	294	80	32	14	2500
88.230.0125	125	156	100	347	95	40	14	3500
88.230.0160	160	193	121	423	125	50	18	4000
88.230.0200	200	256	147	515	160	63	18	5500
88.230.0250	250	316	174	615	200	80	22	6200

> 88.237 **INTERNATIONAL TOOLS**

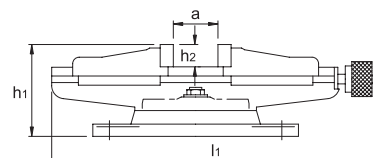
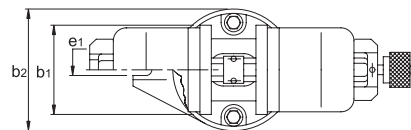
NL **Machinespanklem met draaiplaat**
 FR **Etau de fraisage avec base tournante**
 ES **Mordaza mecánica con base giratoria**
 DE **Maschinenschraubstöcke mit Drehplatte**



Ref.	b1	b2	a max	l1	l2	h1	h2	e1
88.237.0050	50	102	50	175	148	80	25	11
88.237.0075	75	140	75	257	198	101	33	14
88.237.0100	100	175	100	310	244	122	40	14
88.237.0125	125	210	125	354	275	141	47	16
88.237.0150	150	240	150	385	300	148	50	16

> **88.250** **BISON**

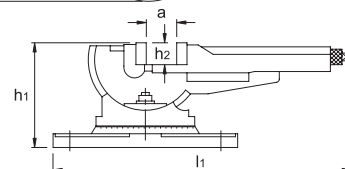
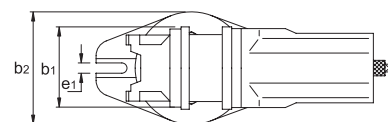
- NL Centrisch spannende Machinespanklem, type 6531
- FR Etai de fraisage à serrage concentrique, type 6531
- ES Mordaza mecánica concéntrica, tipo 6531
- DE Zentrisch spannende Maschinenschraubstöcke, Typ 6531



Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.250.0125	125	168	136	458	100	40	14	3500
88.250.0160	160	212	169	534	125	50	14	4000
88.250.0200	200	286	185	591	160	63	18	5500

> **88.260** **BISON**

- NL Draai- en Zwenkbare Machineklem, type 6530
- FR Etai orientable 2 axes, type 6530
- ES Mordaza mecánica basculante y giratoria, tipo 6530
- DE Dreh- und schwenkbare Maschinenschraubstöcke, Typ 6530



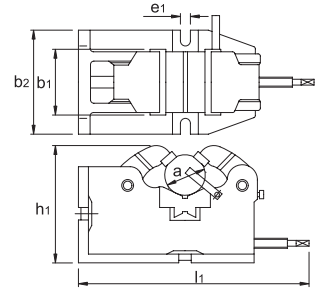
Ref.	b1	b2	h1	l1	a max	h2	e1 N6	Max daN
88.260.0100	100	144	145	372	80	32	14	2500
88.260.0125	125	168	169	437	100	40	17	3500
88.260.0160	160	212	195	492	125	50	18	4000





> 88.270 **BISON**

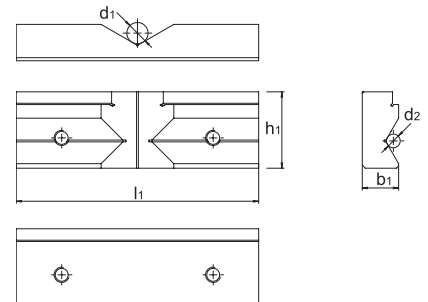
NL Assenspanklem, type 6546
 FR Etau auto centreur, type 6546
 ES Mordaza mecánica para ejes, tipo 6546
 DE Klemme für Wellen, Typ 6546



Ref.	b1	b2	h1	l1	a max	e1 N6	Max daN
88.270.0100	100	180	170	305	10-63	18	1000
88.270.0125	125	200	235	405	15-100	18	1500
88.270.0160	160	245	295	460	50-160	18	2000

> 88.318 **BISON**

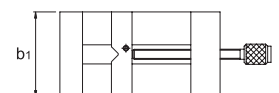
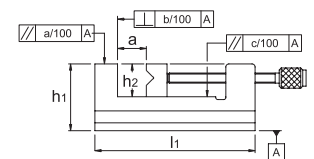
NL Prismabekken voor machinespanklem artikelnr. 88.200
 FR Jeu de mors pour étau de fraisage n° article 88.200
 ES Garras con ranurado para mordaza mecánica n° artículo 88.200
 DE Prismabacken für Maschinenschraubstöcke Artikel-Nr. 88.200



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

> 88.340 **Phantom**

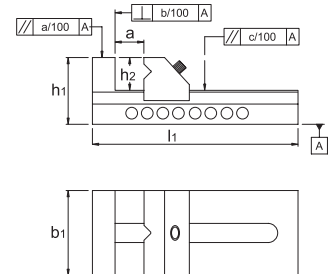
NL Precisie Slijpklem
 FR Etau de précision
 ES Mordaza de precisión
 DE Präzisions-Schleifschraubstöcke



Ref.	b1	l1	h1	l2	a max	h2	Tol. a	Tol. b	Tol. c
88.340.0050	50	155	50	207.5	65	25	0.005	0.005	0.005
88.340.0063	63	190	65	242.5	85	32	0.005	0.005	0.005
Ref.	b1	l1	h1	l2	a max	h2	Tol. a	Tol. b	Tol. c
88.340.0080	80	220	84	280.5	100	40	0.005	0.005	0.005
88.340.0100	100	260	95	328.5	125	45	0.007	0.005	0.005

> **88.350** **Phantom**

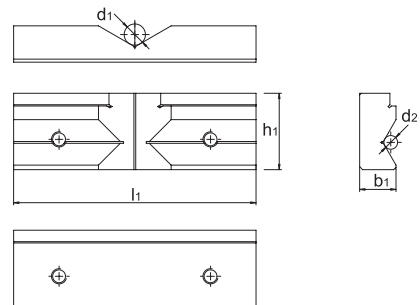
NL **Precisie Slijpklem, met spanbout aan bovenzijde en snelverstelling**
 FR **Etou de précision, mors avec système de positionnement rapide**
 ES **Mordaza de precisión, con perno a parte encima y cambio rápido**
 DE **Präzisions-Schleifschraubstöcke, mit Spannbolzen oben und Schnellverstellung**



Ref.	b1	l1	h1	h2	a max	Tol. a	Tol. b	Tol. c
88.350.0026	26	65.4	29	9.15	22	0.007	0.005	0.005
88.350.0036	36	100	45	20	40	0.005	0.005	0.005
88.350.0050	50	140	50	25	65	0.005	0.005	0.005
88.350.0073	73	190	67	35	100	0.005	0.005	0.005
88.350.0100	100	245	90	45	125	0.005	0.005	0.005
88.350.0125	125	285	100	50	160	0.007	0.005	0.005

> **88.407** **BISON**

NL **Prismabekken voor machinespanklem type 6512, 6530**
 FR **Jeu de mors pour étou de fraisage type 6512, 6530**
 ES **Garras con ranurado para mordaza mecánica tipo 6512, 6530**
 DE **Prismabacken für Maschinenschraubstöcke Typ 6512, 6530**



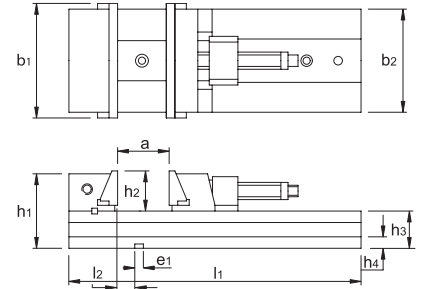
Ref.	l1	h1	b1	d1	d2	Bison
88.407.0100	100	32	18	6-24	12-48	6512, 6530, 6537
88.407.0125	125	40.4	22	8-30	15-60	6512, 6530, 6537
88.407.0160	160	50.4	24	10-35	18-80	6512, 6530, 6531, 6537, 6522, 6515, 6516
88.407.0200	200	63.4	30	14-44	22-100	6512, 6530, 6531, 6537, 6522, 6515, 6516





> 88.430 BISON

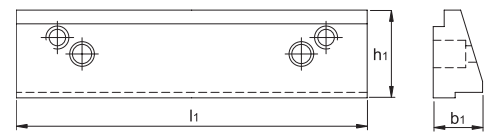
- NL Modulaire Precisie Machinespanklem, type 6620
 FR Etau modulaire de haute précision, type 6620
 ES Mordaza mecánica modular de alta precisión, tipo 6620
 DE Modulare Präzisions-Maschinenschraubstöcke, Typ 6620



Ref.	b1	b2	h3	h4	h1	l1	a max	h2	e1 N6	l2	Max. daN
88.430.1033	100	85	35	13	65	320	165	30	12	12	2000
88.430.1234	125	105	42	15	82	335	165	40	12	18	3000
88.430.1543	150	140	52	18	102	425	210	50	18	21.2	4100
88.430.1548	150	140	52	18	102	475	260	50	18	21.2	4100
88.430.1552	150	140	52	18	102	520	305	50	18	21.2	4100
88.430.2054	200	165	61	20	121	535	260	60	18	38.07	4500
88.430.2059	200	165	61	20	121	585	310	60	18	38.07	4500
88.430.2064	200	165	61	20	121	635	360	60	18	38.07	4500

> 88.431 BISON

- NL Getrapte Bekken, voor Modulaire Precisie Machinespanklem type 6620
 FR Mors avec méplat, pour Etau modulaire de haute précision type 6620
 ES Garras escalonada, para Mordaza mecánica modular de alta precisión tipo 6620
 DE Stufenbacke, für Modulare Präzisions-Maschinenschraubstöcke Typ 6620

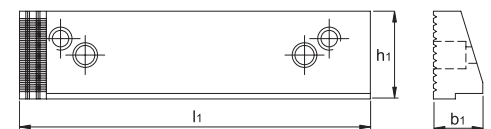


NIEUW / NOUVEAU / NUEVO / NEU

Ref.	l1	h1	b1	Bison
88.431.0125	125	32	18	6620
88.431.0150	150	42	24	6620
88.431.0200	200	50	30	6620

> 88.432 BISON

- NL Gegroefde bekken, voor Modulaire Precisie Machinespanklem type 6620
 FR Mors rainurés, pour Etau modulaire de haute précision type 6620
 ES Garras ranuradas, para Mordaza mecánica modular de alta precisión tipo 6620
 DE Gerillten Backen, für Modulare Präzisions-Maschinenschraubstöcke Typ 6620

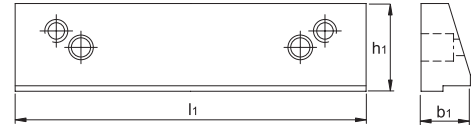


NIEUW / NOUVEAU / NUEVO / NEU

Ref.	l1	h1	b1	Bison
88.432.0100	100	23	15	6620
88.432.0125	125	32	18	6620
88.432.0150	150	42	24	6620
88.432.0200	200	50	30	6620

> **88.433 BISON**

- NL Gladde bekken, voor Modulaire Precisie Machinespanklem type 6620
- FR Mors lisses, pour Etou modulaire de haute précision type 6620
- ES Garras lisas, para Mordaza mecánica modular de alta precisión tipo 6620
- DE Glatte Backen, für Modulare Präzisions-Maschinenschraubstöcke Typ 6620

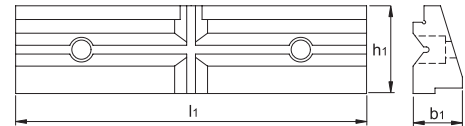


NIEUW / NOUVEAU / NUEVO / NEU

Ref.	l1	h1	b1	Bison
88.433.0100	100	23	15	6620
88.433.0125	125	32	18	6620
88.433.0150	150	42	24	6620
88.433.0200	200	50	30	6620

> **88.434 BISON**

- NL Prismabekken, voor Modulaire Precisie Machinespanklem type 6620
- FR Jeu de mors, pour Etou modulaire de haute précision type 6620
- ES Garras con ranurado, para Mordaza mecánica modular de alta precisión tipo 6620
- DE Prismabacken, für Modulare Präzisions-Maschinenschraubstöcke Typ 6620

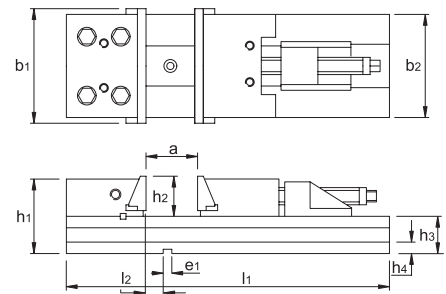


NIEUW / NOUVEAU / NUEVO / NEU

Ref.	l1	h1	b1	Bison
88.434.0125	125	32	18	6620
88.434.0150	150	42	24	6620
88.434.0200	200	50	30	6620

> **88.440 TORAX**

- NL Precisie Machinespanklem
- FR Etou de fraisage de précision
- ES Mordaza mecánica de precisión
- DE Präzisionsschraubstöcke



Ref.	b1	b2	h3	h4	h1	l1	a max	h2	e1 N6	l2	Max. daN
88.440.1027	100	75	35	15	65	270	100	30	16		3000
88.440.1234	125	95	40	15	80	345	150	40	16	25,61	3000
88.440.1542	150	125	50	20	100	420	200	50	16	25,61	5000
88.440.1552	150	125	50	20	100	520	300	50	16	25,61	5000
88.440.1745	175	145	58	20	118	455	200	60	16	25,61	6000
88.440.1755	175	145	58	20	118	555	300	60	16	25,61	6000
88.440.1765	175	145	58	20	118	655	400	60	16	25,61	6000
88.440.1775	175	145	58	20	118	755	500	60	16	25,61	6000

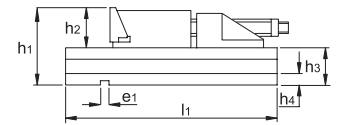
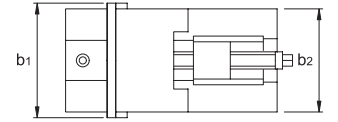
Ref.	b1	b2	h3	h4	h1	l1	a max	h2	e1 N6	l2	Max. daN
88.440.2059	200	170	70	26	135	595	300	65	16	25,61	10000
88.440.2069	200	170	70	26	135	695	400	65	16	25,61	10000
88.440.2079	200	170	70	26	135	795	500	65	16	25,61	10000
88.440.3063	300	195	78	26	158	635	300	80	16	25,61	12000
88.440.3073	300	195	78	26	158	735	400	80	16	25,61	12000
88.440.3083	300	195	78	26	158	835	500	80	16	25,61	12000
88.440.3093	300	195	78	26	158	935	600	80	16	25,61	12000





> 88.470 TORAX

NL **Beweegbare Precisie Machinespanklem**
 FR **Etai machine mobile de précision**
 ES **Mordaza mecánica de alta precisión rotativa**
 DE **bewegbare Präzisions Maschinenklemme**

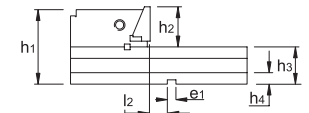
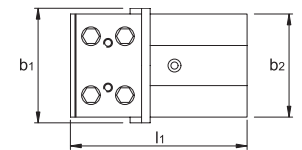


Ref.	b1	b2	h1	h2	h3	h4	l1	e1 N6
88.470.1250	125	95	80	40	40	15	160	16
88.470.1500	150	125	100	50	50	20	230	16

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

> 88.472 TORAX

NL **Vaste Precisie Machinespanklem**
 FR **Etai machine fixe de précision**
 ES **Mordaza Mecánica de precisión fija**
 DE **Präzisions Maschinenschraubstöcke**

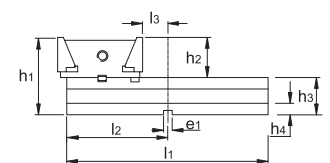
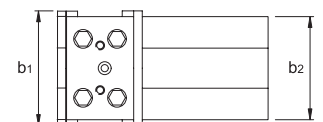


Ref.	b1	b2	h1	h2	h3	h4	l1	l2	e1 N6
88.472.1250	125	95	80	40	40	15	160	25.61	16
88.472.1500	150	125	100	50	50	20	230	25.61	16

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

> 88.474 TORAX

NL **Vaste Dubbele Precisie Machinespanklem**
 FR **Etai machine fixe double de précision**
 ES **Mordaza Mecánica de doble precisión fija**
 DE **Präzisions Maschinenschraubstock mit Doppelspannung**

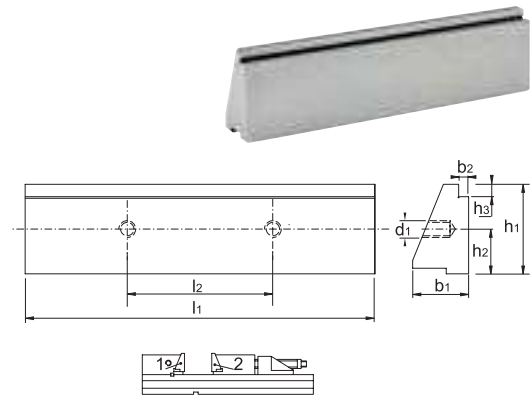


Ref.	b1	b2	h1	h2	h3	h4	l1	l2	l3	e1 N6
88.474.1250	125	95	80	40	40	15	160	71	33.6	16
88.474.1500	150	125	100	50	50	20	230	122.5	33.6	16

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
88.474.2000	200	170	135	65	70	26	300	155	33.6	16

> 88.475 TORAX

- NL Getrapte Bekken 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 Garras escalonada para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
- DE Stufenbacke für Präzisionsschraubstöcke 88.440, 88.470 und 88.472

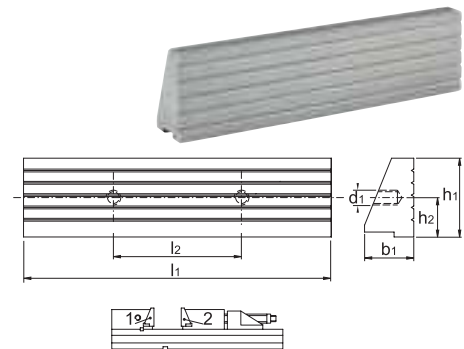


Ref.	l1	h1	b1	l2	h2	d1	b2	h3	Type
88.475.1002	100	24.5	14	20	10	M6	3	5	1
88.475.1004	100	24.5	14	62	10	M6	3	5	2
88.475.1202	125	32	19	32	15	M8	3	5	1
88.475.1204	125	32	19	80	15	M8	3	5	2
88.475.1502	150	40	24	50	19	M8	5	5	1

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

> 88.476 TORAX

- NL Standaard Gegroefde Bekken voor precisie machinespanklem 88.440, 88.470 en 88.472
- FR Mors rainurés standards pour étau de haute précision 88.440, 88.470 et 88.472
- ES Garras escalonada para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
- DE Stufenbacke für Präzisionsschraubstöcke 88.440, 88.470 und 88.472

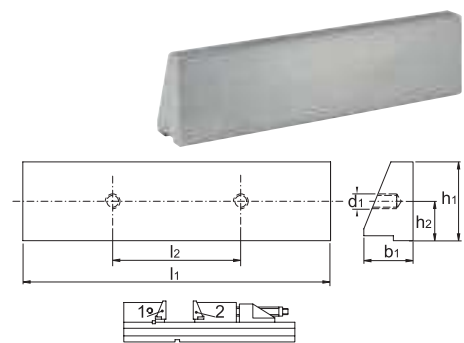


Ref.	l1	h1	b1	l2	h2	d1	Type
88.476.1002	100	24.5	14	20	10	M6	1
88.476.1004	100	24.5	14	62	10	M6	2
88.476.1202	125	32	19	32	15	M8	1
88.476.1204	125	32	19	80	15	M8	2
88.476.1502	150	40	24	50	19	M8	1
88.476.1504	150	40	24	90	19	M8	2

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

> 88.477 TORAX

- NL Gladde Bekken voor precisie machinespanklem, 88.440, 88.470 en 88.472
- FR Mors lisses pour étau de haute précision 88.440, 88.470 et 88.472
- ES garras lisas para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
- DE glatte Backen für Präzisionsschraubstöcke 88.440, 88.470 und 88.472



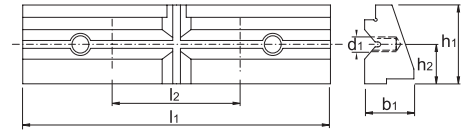
Ref.	l1	h1	b1	l2	h2	d1	Type
88.477.1002	100	24.5	14	20	10	M6	1
88.477.1004	100	24.5	14	62	10	M6	2
88.477.1202	125	32	19	32	15	M8	1
88.477.1204	125	32	19	80	15	M8	2
88.477.1502	150	40	24	50	19	M8	1
88.477.1504	150	40	24	90	19	M8	2

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




> 88.478 TORAX

- NL Prismabekken voor precisie machinespanklem, 88.440, 88.470 en 88.472
 FR Jeu de mors prismatique pour étau de haute précision 88.440, 88.470 et 88.472
 ES Garras prismáticas para mordaza mecánica de alta precisión 88.440, 88.470 y 88.472
 DE Prismabacken für Präzisionsschraubstöcke 88.440, 88.470 und 88.472


NIEUW NOUVEAU NUEVO NEU

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

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



1 SC



1 HSS-E



2



3 SC



3 HSS-E



4



5



6



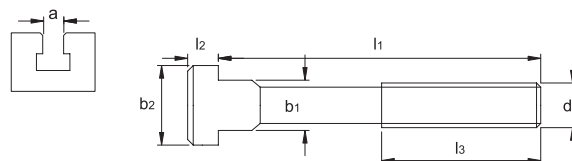
7



8

▶ **88.600**

NL **T-Gleufbout, DIN 787, kwaliteit 8.8**
 FR **Boulon en T, DIN 787, qualité de résistance 8.8**
 ES **Tensor para ranuras T, DIN 787, calidad 8.8**
 DE **T-Nutenschrauben, DIN 787, Qualität 8.8**



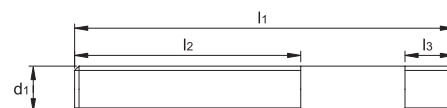
DIN 787

Ref.	a	d1	l1	l3	b1	l2	b2
88.600.1004	10	M10	40	30	9.7	6	15
88.600.1006	10	M10	63	45	9.7	6	15
88.600.1010	10	M10	100	60	9.7	6	15
88.600.1205	12	M12	50	35	11.5	7	18
88.600.1206	12	M12	63	40	11.5	7	18
88.600.1208	12	M12	80	55	11.5	7	18
88.600.1210	12	M12	100	63	11.5	7	18
88.600.1212	12	M12	125	75	11.5	7	18
88.600.1216	12	M12	160	100	11.5	7	18
88.600.1220	12	M12	200	120	11.5	7	18
88.600.1405	14	M12	50	35	13.5	8	22
88.600.1406	14	M12	63	40	13.5	8	22
88.600.1408	14	M12	80	55	13.5	8	22
88.600.1410	14	M12	100	63	13.5	8	22
88.600.1412	14	M12	125	75	13.5	8	22
88.600.1416	14	M12	160	100	13.5	8	22
88.600.1420	14	M12	200	120	13.5	8	22
88.600.1606	16	M14	63	45	15.5	9	25
88.600.1610	16	M14	100	63	15.5	9	25
88.600.1616	16	M14	160	100	15.5	9	25
88.600.1620	16	M14	200	120	15.5	9	25
88.600.1625	16	M14	250	160	15.5	9	25
88.600.1706	16	M16	63	45	15.5	9	25
88.600.1708	16	M16	80	55	15.5	9	25
88.600.1710	16	M16	100	63	15.5	9	25
88.600.1716	16	M16	160	100	15.5	9	25
88.600.1720	16	M16	200	125	15.5	9	25
88.600.1725	16	M16	250	160	15.5	9	25
88.600.1806	18	M16	63	45	17.5	10	28
88.600.1808	18	M16	80	55	17.5	10	28
88.600.1810	18	M16	100	63	17.5	10	28

Ref.	a	d1	l1	l3	b1	l2	b2
88.600.1816	18	M16	160	100	17.5	10	28
88.600.1820	18	M16	200	125	17.5	10	28
88.600.1825	18	M16	250	160	17.5	10	28
88.600.2008	20	M20	80	55	19.5	12	32
88.600.2010	20	M20	100	63	19.5	12	32
88.600.2012	20	M20	125	85	19.5	12	32
88.600.2016	20	M20	160	110	19.5	12	32
88.600.2020	20	M20	200	125	19.5	12	32
88.600.2025	20	M20	250	160	19.5	12	32
88.600.2031	20	M20	315	180	19.5	12	32
88.600.2208	22	M20	80	55	21.5	14	35
88.600.2210	22	M20	100	63	21.5	14	35
88.600.2212	22	M20	125	85	21.5	14	35
88.600.2216	22	M20	160	100	21.5	14	35
88.600.2220	22	M20	200	125	21.5	14	35
88.600.2225	22	M20	250	160	21.5	14	35
88.600.2231	22	M20	315	180	21.5	14	35
88.600.2410	24	M24	100	70	23.5	16	40
88.600.2412	24	M24	125	85	23.5	16	40
88.600.2416	24	M24	160	110	23.5	16	40
88.600.2420	24	M24	200	125	23.5	16	40
88.600.2425	24	M24	250	160	23.5	16	40
88.600.2431	24	M24	315	180	23.5	16	40
88.600.2440	24	M24	400	250	23.5	16	40
88.600.2810	28	M24	100	70	27.5	18	44
88.600.2812	28	M24	125	85	27.5	18	44
88.600.2816	28	M24	160	110	27.5	18	44
88.600.2820	28	M24	200	125	27.5	18	44
88.600.2825	28	M24	250	160	27.5	18	44
88.600.2831	28	M24	315	180	27.5	18	44
88.600.2840	28	M24	400	250	27.5	18	44

▶ **88.605 Phantom**

NL **Draadeind, DIN 6379, kwaliteit 8.8**
 FR **Goujon, DIN 6379, qualité de résistance 8.8**
 ES **Tensor sin cabeza, DIN 6379, calidad 8.8**
 DE **Stiftschrauben, DIN 6379, Qualität 8.8**



DIN 6379

Ref.	d1	l1	l2	l3
88.605.0604	M6	40	20	9
88.605.0606	M6	60	37	9
88.605.0607	M6	70	50	9
88.605.0608	M6	80	60	9
88.605.0804	M8	40	20	11
88.605.0806	M8	63	40	11
88.605.0808	M8	85	55	11
88.605.0810	M8	100	63	11
88.605.0812	M8	125	75	11
88.605.1005	M10	50	25	13
88.605.1008	M10	80	50	13
88.605.1010	M10	100	63	13
88.605.1012	M10	125	75	13
88.605.1014	M10	140	80	13
88.605.1016	M10	160	100	13
88.605.1205	M12	50	25	15
88.605.1206	M12	63	32	15
88.605.1208	M12	80	50	15
88.605.1210	M12	100	63	15
88.605.1212	M12	125	75	15
88.605.1216	M12	160	100	15
88.605.1220	M12	200	125	15
88.605.1406	M14	63	32	17
88.605.1410	M14	100	50	17
88.605.1412	M14	125	75	17
88.605.1416	M14	160	100	17

Ref.	d1	l1	l2	l3
88.605.1420	M14	200	125	17
88.605.1425	M14	250	160	17
88.605.1606	M16	63	32	19
88.605.1608	M16	80	50	19
88.605.1610	M16	100	63	19
88.605.1612	M16	125	75	19
88.605.1616	M16	160	100	19
88.605.1620	M16	200	125	19
88.605.1625	M16	250	160	19
88.605.1631	M16	315	180	19
88.605.1808	M18	80	50	23
88.605.1810	M18	100	63	23
88.605.1812	M18	125	75	23
88.605.1816	M18	160	100	23
88.605.1820	M18	200	125	23
88.605.1825	M18	250	160	23
88.605.1831	M18	315	180	23
88.605.2008	M20	80	32	27
88.605.2010	M20	100	63	27
88.605.2012	M20	125	75	27
88.605.2016	M20	160	100	27
88.605.2020	M20	200	125	27
88.605.2025	M20	250	160	27
88.605.2031	M20	315	180	27
88.605.2040	M20	400	250	27
88.605.2210	M22	100	45	31





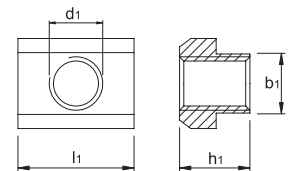
> 88.605

Ref.	d1	l1	l2	l3
88.605.2212	M22	125	75	31
88.605.2216	M22	160	100	31
88.605.2220	M22	200	125	31
88.605.2225	M22	250	160	31
88.605.2231	M22	315	180	31
88.605.2240	M22	400	250	31
88.605.2410	M24	100	45	35
88.605.2412	M24	125	75	35
88.605.2416	M24	160	100	35
88.605.2420	M24	200	125	35
88.605.2425	M24	250	160	35
88.605.2431	M24	315	180	35
88.605.2440	M24	400	250	35
88.605.2450	M24	500	315	35
88.605.2712	M27	125	75	39
88.605.2716	M27	160	100	39
88.605.2720	M27	200	125	39

Ref.	d1	l1	l2	l3
88.605.2725	M27	250	160	39
88.605.2731	M27	315	180	39
88.605.2740	M27	400	250	39
88.605.2750	M27	500	315	39
88.605.3012	M30	125	55	43
88.605.3016	M30	160	100	43
88.605.3020	M30	200	125	43
88.605.3025	M30	250	160	43
88.605.3031	M30	315	180	43
88.605.3040	M30	400	250	43
88.605.3050	M30	500	315	43
88.605.3616	M36	160	80	51
88.605.3620	M36	200	125	51
88.605.3625	M36	250	160	51
88.605.3631	M36	315	200	51
88.605.3640	M36	400	250	51
88.605.3650	M36	500	315	51

> 88.610

NL T-Gleufmoer, DIN 508, kwaliteit 10
 FR Ecrou en T, DIN 508, qualité de résistance 10
 ES Cabeza-T, DIN 508, calidad 10
 DE Muttern für T-Nuten, DIN 508, Qualität 10



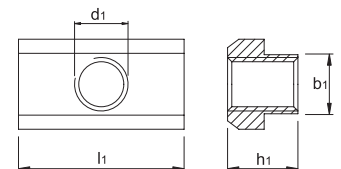
DIN
508

Ref.	a	d1	l1	h1	b1
88.610.0806	8	M6	13	10	7.7
88.610.1008	10	M8	15	12	9.7
88.610.1208	12	M8	18	14	11.7
88.610.1210	12	M10	18	14	11.7
88.610.1410	14	M10	22	16	13.7
88.610.1412	14	M12	22	16	13.7
88.610.1612	16	M12	25	18	15.7
88.610.1614	16	M14	25	18	15.7
88.610.1812	18	M12	28	20	17.7
88.610.1814	18	M14	28	20	17.7
88.610.1816	18	M16	28	20	17.7
88.610.2016	20	M16	32	24	19.7

Ref.	a	d1	l1	h1	b1
88.610.2018	20	M18	32	24	19.7
88.610.2216	22	M16	35	28	21.7
88.610.2220	22	M20	35	28	21.7
88.610.2420	24	M20	40	32	23.7
88.610.2422	24	M22	40	32	23.7
88.610.2820	28	M20	44	36	27.7
88.610.2824	28	M24	44	36	27.7
88.610.3224	32	M24	50	40	31.5
88.610.3227	32	M27	50	40	31.5
88.610.3624	36	M24	54	44	35.5
88.610.3630	36	M30	54	44	35.5
88.610.4236	42	M36	65	52	41.6

> 88.612

NL T-Gleufmoer, lange uitvoering, DIN 508-L, kwaliteit 10
 FR Ecrou en T allongé, DIN 508-L, qualité de résistance 10
 ES Cabeza-T, versión larga, DIN 508-L, calidad 10
 DE Muttern für T-Nuten, langes Modell, DIN 508-L, Qualität 10



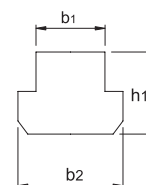
DIN
508-L

Ref.	a	d1	l1	h1	b1
88.612.1008	10	M8	30	12	9.7
88.612.1210	12	M10	36	14	11.7
88.612.1412	14	M12	44	16	13.7
88.612.1614	16	M14	50	18	15.7
88.612.1816	18	M16	56	20	17.7
88.612.2018	20	M18	64	24	19.7

Ref.	a	d1	l1	h1	b1
88.612.2220	22	M20	70	28	21.7
88.612.2422	24	M22	80	32	23.7
88.612.2824	28	M24	88	36	27.7
88.612.3227	32	M27	100	40	31.5
88.612.3630	36	M30	108	44	35.5

> **88.613**

NL **T-Gleufmoer, onbewerkt, DIN 508-R**
 FR **Ecrou en T borgne, DIN 508-R**
 ES **Cabeza-T en bruto, DIN 508-R**
 DE **T-Nutenstein, Rohling, DIN 508-R**



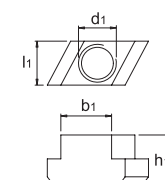
DIN 508-R

Ref.	a	l1	h1	b1
88.613.1000	10	15	12	9.7
88.613.1200	12	18	14	11.7
88.613.1400	14	22	16	13.7
88.613.1600	16	25	18	15.7
88.613.1800	18	28	20	17.7
88.613.2000	20	32	24	19.7

Ref.	a	l1	h1	b1
88.613.2200	22	35	28	21.7
88.613.2400	24	40	32	23.7
88.613.2800	28	44	36	27.7
88.613.3200	32	50	40	31.5
88.613.3600	36	54	44	35.5

> **88.614**

NL **T-Gleufmoer, systeem "Rhombus"**
 FR **Ecrou en T, système "Rhombus"**
 ES **Cabeza-T, sistema "Romboidal"**
 DE **Muttern für T-Nuten, System "Rhombus"**

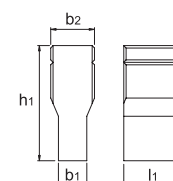
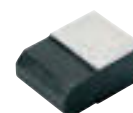


Ref.	a	d1	l1	h1	b1
88.614.1008	10	M8	15	12	9.7
88.614.1210	12	M10	18	14	11.7
88.614.1412	14	M12	22	16	13.7
88.614.1614	16	M14	25	18	15.7

Ref.	a	d1	l1	h1	b1
88.614.1816	18	M16	28	20	17.7
88.614.2220	22	M20	32	24	21.7
88.614.2824	28	M24	35	28	27.7

> **88.615**

NL **T-Gleufsteen, DIN 6323, inzetgehard en geslepen**
 FR **Lardon percé en T, DIN 6323, trempé et rectifié**
 ES **Regletas en T, DIN 6323, templado y rectificado**
 DE **T-Nutensteine, DIN 6323, Gehärtet und geschliffen**



DIN 6323

Ref.	b1	b2	h1	l1
88.615.1012	10	12	12	20
88.615.1212	12	12	28.6	20
88.615.1220	12	20	14	32
88.615.1420	14	20	14	32
88.615.1620	16	20	14	32
88.615.1820	18	20	14	32

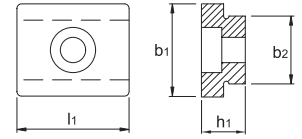
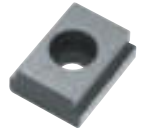
Ref.	b1	b2	h1	l1
88.615.2020	20	20	45.5	32
88.615.2220	22	20	50.5	40
88.615.2420	24	20	55.5	40
88.615.2820	28	20	61.5	40
88.615.3620	36	20	76.5	50





> 88.616

NL T-Gleufsteen, DIN 6322-A, inzetgehard en geslepen
 FR Lardon percé en T, DIN 6322-A, trempé et rectifié
 ES Regletas en T, DIN 6322-A, templado y rectificado
 DE T-Nutensteine, DIN 6322-A, Gehärtet und geschliffen



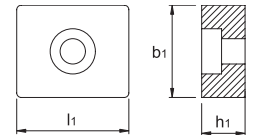
DIN
6322-A

Ref.	b1	b2	h1	l1
88.616.1000	10	20	10	22
88.616.1200	12	20	10	22
88.616.1400	14	20	10	25
88.616.1600	16	20	10	25
88.616.1800	18	20	10	25

Ref.	b1	b2	h1	l1
88.616.2200	22	20	12	32
88.616.2400	24	20	12	32
88.616.2800	28	20	12	32
88.616.3600	36	20	12	32

> 88.617

NL T-Gleufsteen, DIN 6322-B, inzetgehard en geslepen
 FR Lardon percé en T, DIN 6322-B, trempé et rectifié
 ES Regletas en T, DIN 6322-B, templado y rectificado
 DE T-Nutensteine, DIN 6322-B, Gehärtet und geschliffen



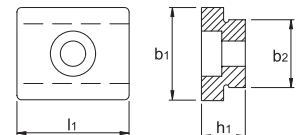
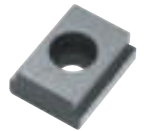
DIN
6322-B

Ref.	b1	h2	l1
88.617.1000	10	8	20
88.617.1200	12	8	20
88.617.1400	14	10	22
88.617.1600	16	10	22

Ref.	b1	h2	l1
88.617.1800	18	10	22
88.617.2000	20	10	22
88.617.2200	22	12	32
88.617.2400	24	12	32

> 88.618

NL T-Gleufsteen, voor TORAX machinespanklemmen 88.440, 88.470, 88.472
 FR Lardon percé en T, pour TORAX étaux 88.440, 88.470, 88.472
 ES Regletas en T, para TORAX mordaza mecánica 88.440, 88.470, 88.472
 DE T-Nutensteine, für TORAX Präzisionsschraubstöcke 88.440, 88.470, 88.472



Ref.	b1	b2	h1	l1
88.618.1200	12	16	10	25
88.618.1400	14	16	10	25
88.618.1600	16	16	10	25
88.618.1800	18	16	10	25
88.618.2000	20	16	12	25

Ref.	b1	b2	h1	l1
88.618.2200	22	16	12	25
88.618.2400	24	16	12	25
88.618.2800	28	16	12	25
88.618.3600	36	16	12	25

> **88.630**

NL Hoge Moer (1,5x diam.), DIN 6330-B, kwaliteit 10
 FR Ecrou Haut (1,5x diam.), DIN 6330-B, qualité de résistance 10
 ES Tuerca alargada alta (1,5x diám.), DIN 6330-B, calidad 10
 DE Sechskantmutter, hoch (1,5 x durchm.), DIN 6330-B, Qualität 10



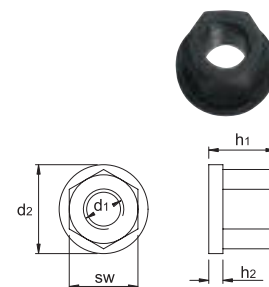
DIN
6330-B

Ref.	d1	h1	sw
88.630.0600	M6	8	10
88.630.0800	M8	12	13
88.630.1000	M10	15	17
88.630.1200	M12	18	19
88.630.1400	M14	21	22
88.630.1600	M16	24	24
88.630.1800	M18	27	27

Ref.	d1	h1	sw
88.630.2000	M20	30	30
88.630.2200	M22	33	32
88.630.2400	M24	36	36
88.630.2700	M27	40	41
88.630.3000	M30	45	46
88.630.3600	M36	54	55

> **88.631**

NL Kraagmoer, DIN 6331, kwaliteit 10
 FR Ecrou à collet, DIN 6331, qualité de résistance 10
 ES Tuerca hexagonal con collar, DIN 6331, calidad 10
 DE Sechskantmutter mit Bund, DIN 6331, Qualität 10



DIN
6331

Ref.	d1	sw	h1	d2	h2
88.631.0600	M6	10	9		
88.631.0800	M8	13	12	18	3,5
88.631.1000	M10	17	15	22	4
88.631.1200	M12	19	18	25	4
88.631.1400	M14	22	21	28	4,5
88.631.1600	M16	24	24	31	5

Ref.	d1	sw	h1	d2	h2
88.631.1800	M18	27	27	34	5
88.631.2000	M20	30	30	37	6
88.631.2200	M22	32	33	40	6
88.631.2400	M24	36	36	45	6
88.631.2700	M27	41	40	51	8
88.631.3000	M30	46	45	58	8

> **88.632**

NL Verlengmoer (3x diam.), DIN 6334, kwaliteit 10
 FR Ecrou allongé haut (3x diam.), DIN 6334, qualité de résistance 10
 ES Tuerca alargada alta (3x diám.), DIN 6334, calidad 10
 DE Verlängerungsmuttern (3x durchm.), DIN 6334, Qualität 10



DIN
6334

Ref.	d1	h1	sw
88.632.0600	M6	18	10
88.632.0800	M8	24	13
88.632.1000	M10	30	17
88.632.1200	M12	36	19
88.632.1400	M14	42	22
88.632.1600	M16	48	24

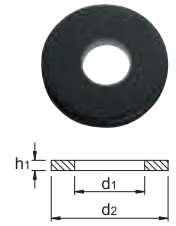
Ref.	d1	h1	sw
88.632.1800	M18	54	27
88.632.2000	M20	60	30
88.632.2200	M22	66	32
88.632.2400	M24	72	36
88.632.2700	M27	81	41
88.632.3000	M30	90	46





> 88.640

NL **Onderlegschiif, DIN 6340**
 FR **Rondelle, DIN 6340**
 ES **Arandela, DIN 6340**
 DE **Unterlegscheiben, DIN 6340**



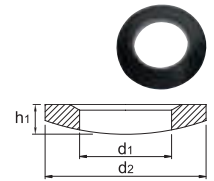
DIN 6340

Ref.	M	d1	d2	b1
88.640.0600	M6	6.4	17	3
88.640.0800	M8	8.5	23	4
88.640.1000	M10	10.5	28	4
88.640.1200	M12	13	35	5
88.640.1400	M14	15	40	5
88.640.1600	M16	17	45	6
88.640.1800	M18	19	45	6

Ref.	M	d1	d2	b1
88.640.2000	M20	21	50	6
88.640.2200	M22	23	50	7
88.640.2400	M24	25	60	8
88.640.2700	M27	28	60	8
88.640.3000	M30	31	65	10
88.640.3600	M36	38	80	12

> 88.641

NL **Kogelschiif, DIN 6319-C**
 FR **Rondelle sphérique, DIN 6319-C**
 ES **Disco esférico, DIN 6319-C**
 DE **Kugelscheiben, DIN 6319-C**



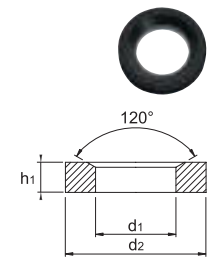
DIN 6319-C

Ref.	M	d1	d2	h1
88.641.0800	M8	8.4	17	3.2
88.641.1000	M10	10.5	21	4
88.641.1200	M12	13	24	4.6
88.641.1400	M14	15	28	5

Ref.	M	d1	d2	h1
88.641.1600	M16	17	30	5.3
88.641.2000	M20	21	36	6.3
88.641.2400	M24	25	44	8.2
88.641.3000	M30	31	56	11.2

> 88.642 *Phantom*

NL **Kegelschiif, hol, DIN 6319-D**
 FR **Rondelle articulée, cimentée, DIN 6319-D**
 ES **Cazoleta cónica, cementada, DIN 6319-D**
 DE **Kegelpfannen, hohl, DIN 6319-D**



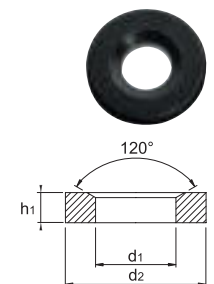
DIN 6319-D

Ref.	M	d1	d2	h1
88.642.0800	M8	9.6	17	3.5
88.642.1000	M10	12	21	4.2
88.642.1200	M12	14.2	24	5
88.642.1400	M14	16.5	28	5.6

Ref.	M	d1	d2	h1
88.642.1600	M16	19	30	6.2
88.642.2000	M20	23.2	36	7.5
88.642.2400	M24	28	44	9.5
88.642.3000	M30	35	56	12

> 88.643 *Phantom*

NL **Kegelschiif, DIN 6319-G**
 FR **Rondelle articulée, DIN 6319-G**
 ES **Cazoleta cónica, DIN 6319-G**
 DE **Kegelpfannen, DIN 6319-G**



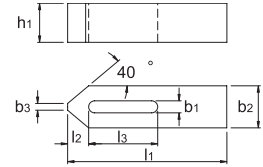
DIN 6319-G

Ref.	M	d1	d2	h1
88.643.0800	M8	9.6	23	5
88.643.1000	M10	12	28	5
88.643.1200	M12	14.2	35	6
88.643.1400	M14	16.5	40	6

Ref.	M	d1	d2	h1
88.643.1600	M16	19	45	7
88.643.2000	M20	23.2	50	8
88.643.2400	M24	28	60	10
88.643.3000	M30	35	68	10

> **88.650**

NL **Spanijzer, vlak, DIN 6314**
 FR **Bride droite, DIN 6314**
 ES **Brida plana, DIN 6314**
 DE **Flache Spanneisen, DIN 6314**



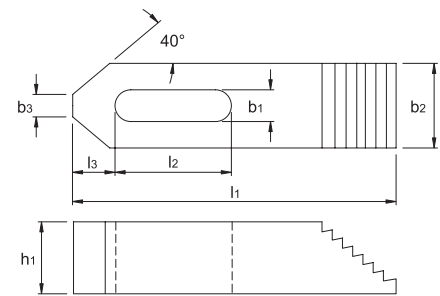
DIN 6314

Ref.	b1	l1	h1	M	b2	b3	l2	l3
88.650.0705	7	50	10	M6	20	8	10	20
88.650.0906	9	60	12	M8	25	10	13	22
88.650.1108	11	80	15	M10	30	12	15	30
88.650.1408	14	80	20	M12, M14	40	14	21	30
88.650.1410	14	100	20	M12, M14	40	14	21	40
88.650.1412	14	125	20	M12, M14	40	14	21	50
88.650.1810	18	100	25	M16, M18	50	18	26	40
88.650.1812	18	125	25	M16, M18	50	18	26	45
88.650.1816	18	160	25	M16, M18	50	18	26	65

Ref.	b1	l1	h1	M	b2	b3	l2	l3
88.650.2216	22	160	30	M20, M22	60	22	30	80
88.650.2220	22	200	30	M20, M22	60	22	30	80
88.650.2225	22	250	30	M20, M22	60	22	30	100
88.650.2616	26	160	30	M24	70	26	35	60
88.650.2620	26	200	30	M24	70	26	35	80
88.650.2625	26	250	30	M24	70	26	35	105
88.650.3425	34	250	40	M30	80	34	45	100
88.650.3431	34	315	50	M30	80	34	45	130

> **88.655**

NL **Spanijzer, vertand, DIN 6314-Z**
 FR **Bride droite pour cales crénelées, DIN 6314-Z**
 ES **Brida dentada, DIN 6314-Z**
 DE **Spanneisen mit Treppenzähnen, DIN 6314-Z**



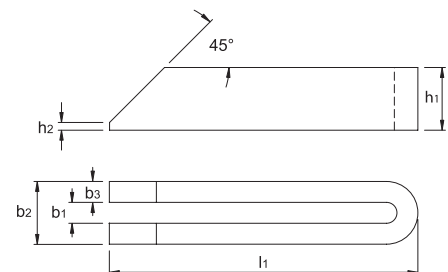
DIN 6314-Z

Ref.	b1	l1	h1	M	b2	b3	l2	l3
88.655.0705	7	50	10	M6	20	8	10	20
88.655.0906	9	60	12	M8	25	10	13	22
88.655.1108	11	80	15	M10	30	12	15	30
88.655.1410	14	100	20	M12, M14	40	14	21	40

Ref.	b1	l1	h1	M	b2	b3	l2	l3
88.655.1812	18	125	25	M16, M18	50	18	26	45
88.655.2216	22	160	30	M20, M22	60	22	30	60
88.655.2620	26	200	30	M24	70	26	35	80

> **88.660**

NL **Spanbeugel, afgeschuind, DIN 6315-B**
 FR **Bride à fourche simple, DIN 6315-B**
 ES **Brida horquilla, DIN 6315-B**
 DE **Abgeschrägte Gabelspanneisen, DIN 6315-B**



DIN 6315-B

Ref.	b1	l1	M	h1	b2	b3	h2
88.660.0706	7	60	M6	12	12	6	3
88.660.0908	9	80	M8	25	15	8	4
88.660.1110	11	100	M10	31	20	10	5
88.660.1412	14	125	M12, M14	38	25	12	6
88.660.1416	14	160	M12, M14	38	25	12	6
88.660.1420	14	200	M12, M14	38	25	12	6

Ref.	b1	l1	M	h1	b2	b3	h2
88.660.2220	22	200	M20, M22	52	40	15	10
88.660.2225	22	250	M20, M22	52	40	15	10
88.660.2231	22	315	M20, M22	52	40	20	10
88.660.2620	26	200	M24	66	40	20	10
88.660.2625	26	250	M24	66	40	20	10
88.660.2631	26	315	M24	66	40	20	10





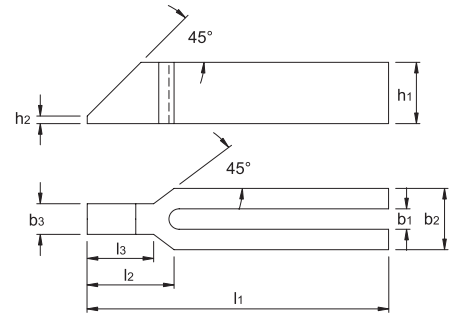
88.660

Ref.	b1	l1	M	h1	b2	b3	h2
88.660.1816	18	160	M16, M18	48	30	15	8
88.660.1820	18	200	M16, M18	48	30	15	8
88.660.1825	18	250	M16, M18	48	40	15	8

Ref.	b1	l1	M	h1	b2	b3	h2
88.660.3425	34	250	M30	74	50	20	12
88.660.3431	34	315	M30	74	50	20	12
88.660.3440	34	400	M30	74	50	20	12

> 88.665

NL Spanijzer met neus, DIN 6315-GN
 FR Bride avec nez, DIN 6315-GN
 ES Brida con nariz, DIN 6315-GN
 DE Spanneisen mit Nase, DIN 6315-GN

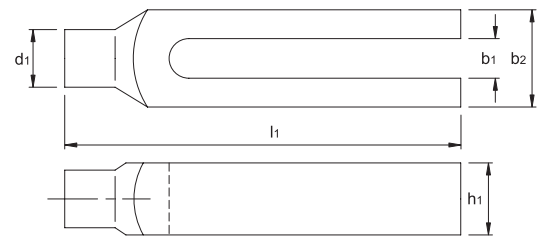
DIN
6315-GN

Ref.	b1	l1	h1	M	b2	b3	l2	l3
88.665.0910	9	100	15	M8	30	16	32	18
88.665.1112	11	125	20	M10	30	20	38	24
88.665.1416	14	160	25	M12, M14	40	24	47	30
88.665.1420	14	200	25	M12, M14	40	24	47	30
88.665.1816	18	160	30	M16, M18	50	28	57	36
88.665.1820	18	200	30	M16, M18	50	28	57	36
88.665.1825	18	250	30	M16, M18	50	28	57	36

Ref.	b1	l1	h1	M	b2	b3	l2	l3
88.665.2220	22	200	40	M20, M22	60	35	68	45
88.665.2225	22	250	40	M20, M22	60	35	68	45
88.665.2231	22	315	40	M20, M22	60	35	68	45
88.665.2625	26	250	40	M24	70	43	83	56
88.665.2631	26	315	40	M24	70	43	83	56
88.665.3431	34	315	50	M30	80	50	88	56
88.665.3440	34	400	50	M30	80	50	88	56

> 88.670

NL Spanijzer met ronde neus, DIN 6315-C
 FR Bride avec nez rond, DIN 6315-C
 ES Brida con espiga redonda, DIN 6315-C
 DE Spanneisen mit Kugel-Nase, DIN 6315-C

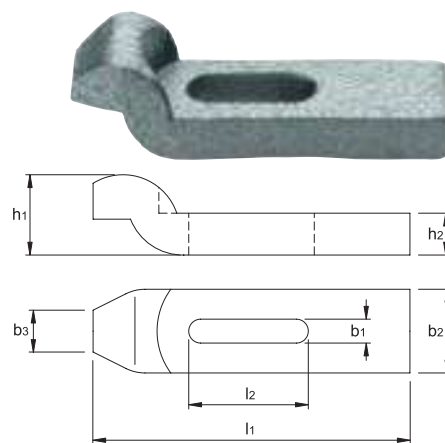
DIN
6315-C

Ref.	b1	l1	d1	M	b2	h1
88.670.0708	7	80	12	M6	19	15
88.670.0910	9	100	12	M8	25	15
88.670.1112	11	125	16	M10	31	20
88.670.1416	14	160	20	M12, M14	38	25

Ref.	b1	l1	d1	M	b2	h1
88.670.1820	18	200	24	M16, M18	48	30
88.670.2225	22	250	30	M20, M22	62	40
88.670.2631	26	315	38	M24	66	40
88.670.3440	34	400	45	M27, M30	74	50

> **88.675**

- NL **Spanijzer, gebogen, DIN 6316**
- FR **Bride contre-coudée, DIN 6316**
- ES **Brida acodada, DIN 6316**
- DE **Spanneisen, gekröpft, DIN 6316**



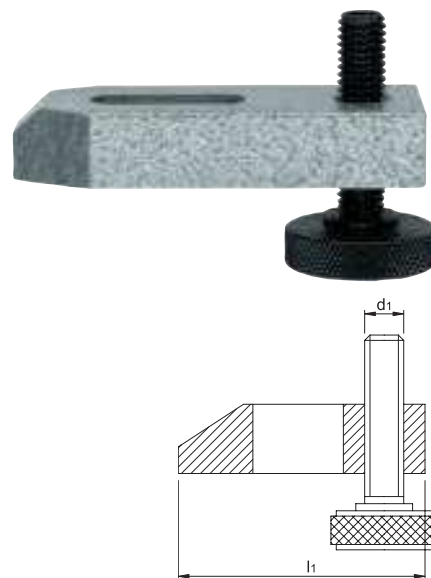
DIN 6316

Ref.	b1	l1	M	h1	b2	b3	h2
88.675.0908	9	80	M8	25	25	12	12
88.675.1110	11	100	M10	30	32	15	15
88.675.1412	14	125	M12, M14	40	40	20	20
88.675.1812	18	125	M16, M18	50	50	25	25
88.675.1816	18	160	M16, M18	50	50	25	25

Ref.	b1	l1	M	h1	b2	b3	h2
88.675.2216	22	160	M20	60	70	30	30
88.675.2220	22	200	M20	60	70	30	30
88.675.2620	26	200	M24	70	80	35	35
88.675.2625	26	240	M24	70	80	35	35

> **88.700**

- NL **Spanijzer, verstelbaar, Type 6314-T**
- FR **Bride expansible, Type 6314-T**
- ES **Brida regulable, Tipo 6314-T**
- DE **Verstellbares Spanneisen, Typ 6314-T**



DIN 6314-T

Ref.	e1 N6	l1	d1	M
88.700.1108	11	80	M10	M10
88.700.1410	14	100	M12	M12, M14
88.700.1812	18	125	M16	M16, M18

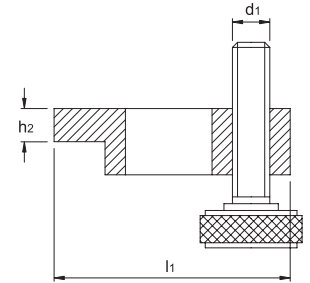
Ref.	e1 N6	l1	d1	M
88.700.2216	22	160	M20	M20, M22
88.700.2620	26	200	M24	M24





> 88.705

NL **Spanijzer, verstelbaar, Type 6314-AT**
 FR **Bride expansible, Type 6314-AT**
 ES **Brida regulable, Tip0 6314-AT**
 DE **Verstellbares Spanneisen, Typ 6314-AT**



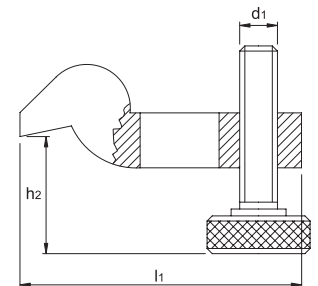
DIN
6314-AT

Ref.	e1 N6	l1	d1	h2	M
88.705.1108	10	80	M10	14	M10
88.705.1410	14	100	M12	14	M12, M14

Ref.	e1 N6	l1	d1	h2	M
88.705.1812	18	125	M16	16	M16, M18
88.705.2216	22	160	M20	20	M20, M22

> 88.710

NL **Spanijzer, verstelbaar, Type 6316-T**
 FR **Bride expansible, Type 6316-T**
 ES **Brida regulable, Tipo 6316-T**
 DE **Verstellbares Spanneisen, Typ 6316-T**



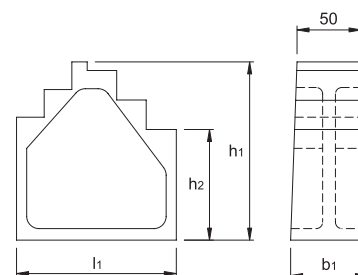
DIN
6316-T

Ref.	e1 N6	l1	d1	h2	M
88.710.1110	11	100	M10	30-70	M10
88.710.1412	14	125	M12	34-74	M12, M14

Ref.	e1 N6	l1	d1	h2	M
88.710.1816	18	160	M16	43-93	M16, M18
88.710.2220	22	200	M20	50-110	M20, M22

> **88.750**

- NL Ophoogblok, DIN 6318
- FR Cale étagée, DIN 6318
- ES Calzos de escalera, DIN 6318
- DE Treppenblöcke, DIN 6318



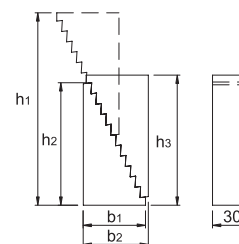
DIN
6318

Ref.	l1	b1	h2	h1
88.750.0095	55	50	57.5	95

Ref.	l1	b1	h2	h1
88.750.0140	60	100	102.5	140

> **88.780**

- NL Opstopblok, type 6500
- FR Cale crénelée, type 6500
- ES Calzo universal, tipo 6500
- DE Spannunterlagen, Typ 6500

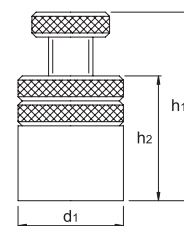


Ref.	b2	h1	h2	b1	h3
88.780.0050	25	50	36	22	40
88.780.0100	35	100	70	33	74

Ref.	b2	h1	h2	b1	h3
88.780.0190	60	190	120	60	124

> **88.800**

- NL Vijzel, type 6400
- FR Vérin de calage et d'alignement, type 6400
- ES Gato de apuntalamiento y alineado, tipo 6400
- DE Höhen-Richtschraubbock, Typ 6400



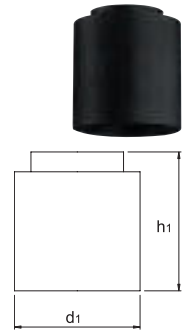
Ref.	Type	d1	h2	h1
88.800.0100	1	28	30	45
88.800.0200	2	38	45	65
88.800.0300	3	45	65	95
88.800.0400	4	60	90	140

Ref.	Type	d1	h2	h1
88.800.0500	5	80	125	190
88.800.0600	6	100	190	280
88.800.0700	7	100	275	500



> 88.805

NL **Onderzetstuk voor Vijzel**
 FR **Rallonge pour Vérin de calage et d'alignement**
 ES **Alargo para Gato de apuntalamiento y alineado**
 DE **Distanzstücke für Höhen-Richtschaubock**

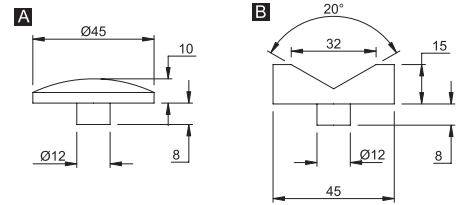


Ref.	Nr.	h1	d1
88.805.0101	1	15	28
88.805.0102	1	30	28
88.805.0103	1	60	28
88.805.0201	2	20	38
88.805.0202	2	40	38
88.805.0203	2	80	38
88.805.0301	3	30	45

Ref.	Nr.	h1	d1
88.805.0302	3	60	45
88.805.0303	3	100	45
88.805.0401	4	50	60
88.805.0402	4	100	60
88.805.0501	5	65	80
88.805.0502	5	130	100

> 88.810

NL **Opzetelement voor Vijzel**
 FR **Tête pour Vérin de calage et d'alignement**
 ES **Cabeza para Gato de apuntalamiento y alineado**
 DE **Strukturelement für Höhen-Richtschaubock**

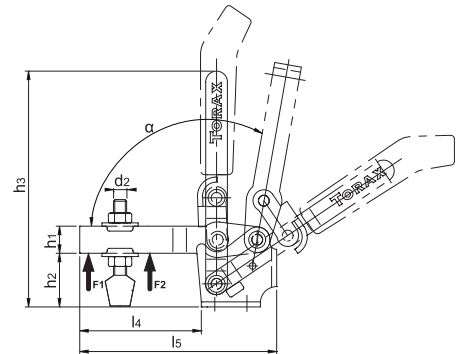
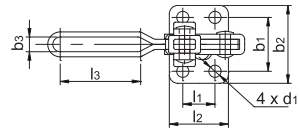


Ref.	Type
88.810.0100	A

Ref.	Type
88.810.0200	B

> 88.900 TORAX

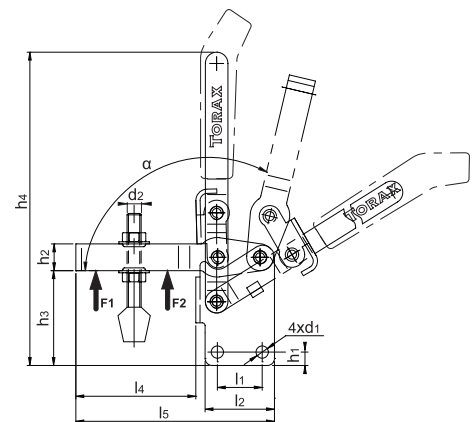
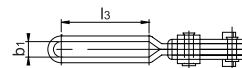
- NL Verticale Spanklem, met horizontale voet
- FR Sauterelle verticale, à pied horizontal
- ES Grapas Rápidas vertical, con base horizontal
- DE Vertikale Spannklemme, mit waagrechtem Fuß



Ref.	Type	b1	l1	d1	b2	l2	b3	h1	h2	h3	l3	l4	l5	α1	F1	F2	d2
88.900.0000	0	23.8	15.9	4.4	33.3	25.4	5	8	18.8	76.1	17.5	26	54.2	100°	0.5	0.7	M4 x 25
88.900.0100	1	27	12.7	5.2	39.7	25.4	6.4	9.8	22.7	97.3	16	33	64	100°	0.8	1.1	M6 x 44
88.900.0300	3	31.8	19	7.2	46	34.9	8.7	16	31.8	140	47.6	71.4	116	100°	1.4	2.5	M8 x 63
88.900.0400	4	45.3	31.8	8.7	64.3	49.2	11	19	44	202	49.2	85.1	140.9	105°	2	3	M10 x 85
88.900.0500	5	45.2	31.8	8.7	64.2	50.8	13.4	23	51	225	79.4	125.4	176.2	100° - 135°	3	5	M12 x 100
88.900.0600	6	69.8	50.8	12.3	95.2	76.2	16.7	32	82.6	305	79.4	153	229.2	100° - 140°	3.5	5.5	M16 x 150

> 88.902 TORAX

- NL Verticale Spanklem, met verticale voet
- FR Sauterelle verticale, à pied vertical
- ES Grapas Rápidas vertical, con base vertical
- DE Vertikale Spannklemme, mit vertikalem Fuß

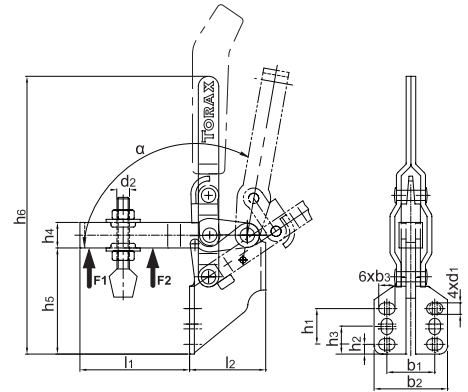
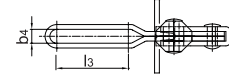


Ref.	Type	h1	l1	d1	l2	b1	h2	h3	h4	l3	l4	l5	1	F1	F2	d2
88.902.0000	0	4.75	15.9	4.4	25.4	5	8	30.1	87.4	17.5	26	54.2	100°	0.8	1.1	M4 x 25
88.902.0100	1	6.4	12.7	5.2	25.4	6.4	9.8	34.6	109	17.5	32.9	64	100°	0.8	1.1	M6 x 44
88.902.0300	3	7.1	19	7.2	34.9	8.7	16	46.9	154	47.6	71.4	64	100°	1.4	2.5	M8 x 63
88.902.0400	4	9.5	31.8	8.7	49.2	11	19	67.3	222	62.5	85.1	116	105°	2	3	M10 x 85
88.902.0500	5	9.5	31.8	8.7	50.8	13.4	22.5	67	241	79.4	125.4	140.9	100° - 135°	3	5	M12 x 100
88.902.0600	6	12.7	50.8	12.3	76.2	16.7	31.8	115	338	90	153	176.2	100° - 140°	3.5	5.5	M16 x 150



> 88.904 TORAX

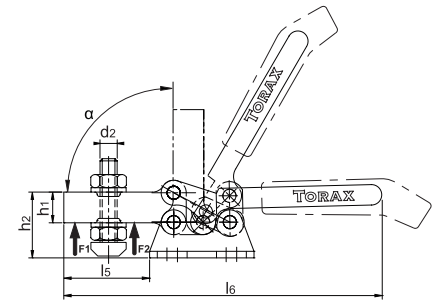
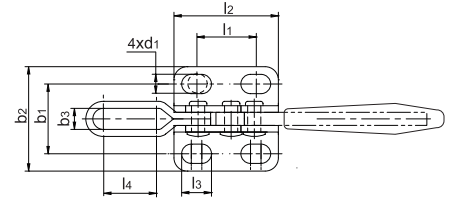
NL Verticale Spanklem, met haakse hoek
 FR Sauterelle verticale, à angle perpendiculaire
 ES Grapas Rápidas vertical, con ángulo perpendicular
 DE Vertikale Spannklemme, mit rechtwinkliger Erstellung



Ref.	Type	b1	h1	d1	b2	b3	b4	h2	h3	h4	h5	h6	l1	l2	l3	α 1	F1	F2	d2
88.904.0100	1	20	14	4.8	30		8.4	7.5		10	44.8	119	36	34.2	22.9	90°	0.8	1.1	M4 x 25
88.904.0300	3	30	22.4	7.2	46	10.2	8.7	6.1	17,3	16	66.6	174	68.2	47.7	47.6	100°	1.4	10.2	M8 x 63

> 88.910 TORAX

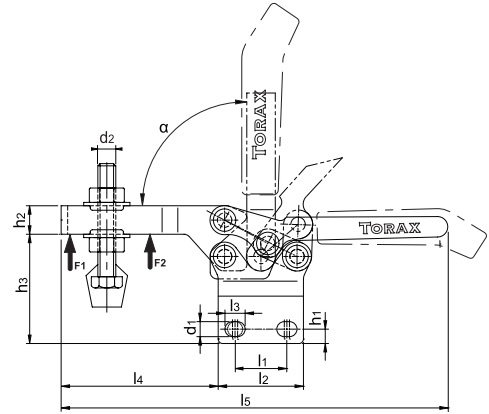
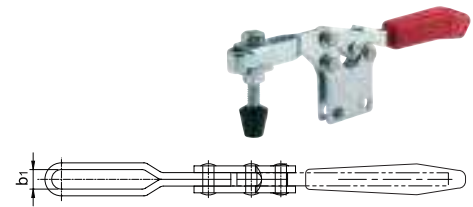
NL Horizontale Spanklem, met horizontale voet
 FR Sauterelle horizontale, à pied horizontal
 ES Grapas Rápidas horizontal, con base horizontal
 DE Horizontaler Spannklemme, mit waagrechtem Fuß



Ref.	Type	b1	l1	b2	l2	l3	b3	h1	h2	l4	l5	l6	α 1	F1	F2	d2
88.910.0000	0	15.9	13.5	23.8	23.8	6.8	4.8	7	15	11	19.6	77	90°	0.25	0.4	M4 x 25
88.910.0200	2	22	27	36	37	6	7.4	12.7	38.1	35	56.2	142	85°	1	1.2	M6 x 44
88.910.0300	3	22.2	23.1	35	38	9	8.7	12.7	47.6	44	70	168	90°	1.8	2.5	M8 x 63
88.910.0500	5	41.3	41.3	57.2	57.1		11	19	63.5	78	107	292	85°	3	5	M10 x 85

> **88.912** **TORAX**

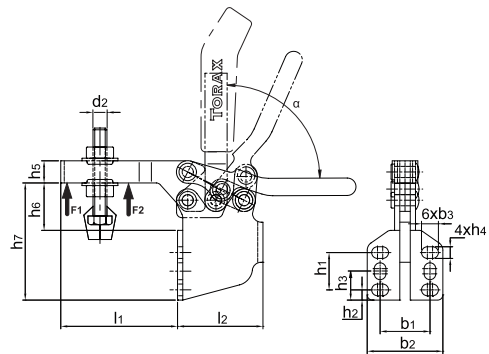
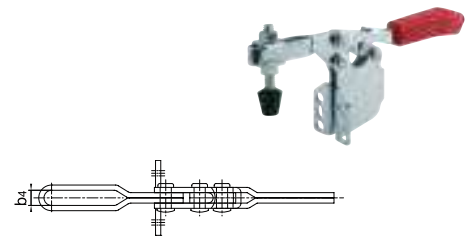
NL Horizontale Spanklem, met verticale voet
 FR Sauterelle horizontale, à pied vertical
 ES Grapas Rápidas horizontal, con base vertical
 DE Horizontaler Spannklemme, mit vertikalem Fuß



Ref.	Type	h1	l1	d1	l3	l2	b1	h2	h3	l4	l5	$\alpha 1$	F1	F2	d2
88.912.0000	0	3.95	13.5	4.4	6.8	23.8	4.8	7	16.1	19.6	77	90°	0.25	0.4	M4 x 25
88.912.0200	2	7	27	5.2	6	37	7.4	12.7	37.9	56.2	56.2	85°	1	1.2	M6 x 44
88.912.0300	3	6.4	23.1	6.7	9	38	8.7	12.7	48.7	70	168	90°	1.8	2.5	M8 x 63
88.912.0500	5	7.9	41.3	8.3		57.1	11	19	63	107	292	85°	3	5	M10 x 85

> **88.914** **TORAX**

NL Horizontale Spanklem, met verticale voet
 FR Sauterelle horizontale, à pied vertical
 ES Grapas Rápidas horizontal, con base vertical
 DE Horizontaler Spannklemme, mit vertikalem Fuß



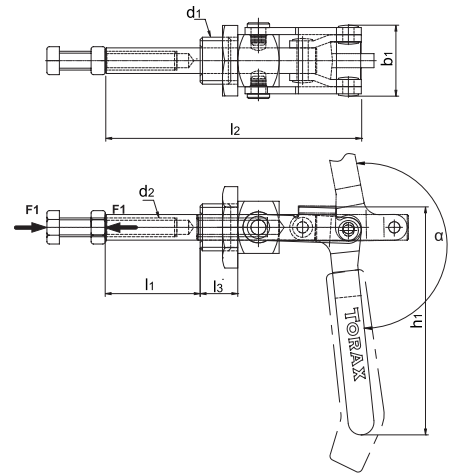
Ref.	Type	b1	h1	b3	h4	b2	b4	h2	h3	h5	h6	h7	l1	l2	$\alpha 1$	F1	F2	d2
88.914.0200	2	22	20.4	8.2	5.2	36	7.4	6.1	16.3	12.7	17.2	62.2	53.25	44	85°	1	1.2	M6 x 44
88.914.0300	3	28.6	21.4	9.7	6.7	43.4	8.7	5.85	16.55	12.7	27.2	67.2	67	49	90°	1.8	2.5	M8 x 63





> 88.920 TORAX

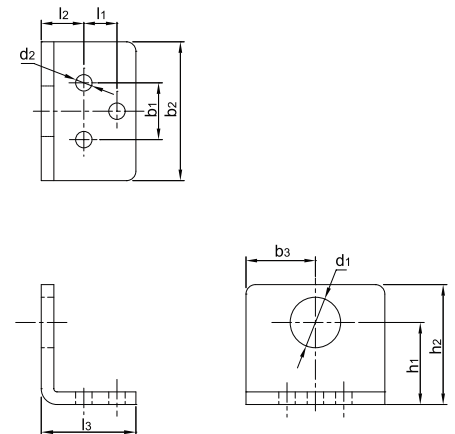
NL **Schuifstang Spanklem, zonder voet**
 FR **Sauterelle à tige coulissante, sans pied**
 ES **Grapas Rápidas Barra corredera, sin base**
 DE **Spannklemme mit Schiebestange, ohne Fuß**



Ref.	Type	l1	l2	b1	d1	h1	l3	α1	F1	d2
88.920.0200	2	21	64.2	24	M16 x 1,5	75	12.7	180°	2	M6 x 1 x 25
88.920.0300	3	39.7	115	31	M20x 1,5	98	15.9	180°	2.5	M8 x 1,25 x 35
88.920.0500	5	70.3	171	39	M27 x 2	137	22.3	180°	4.5	M10 x 1,5 x 40

> 88.921 TORAX

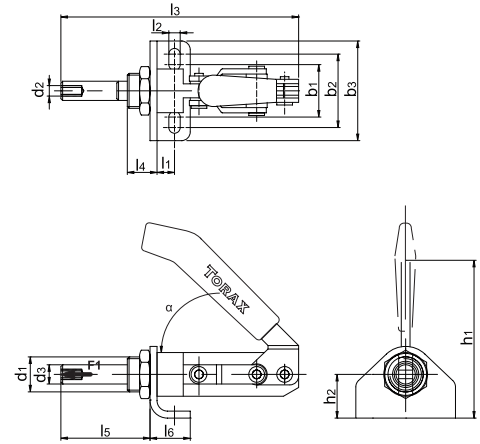
NL **Haakse voet voor Schuifstang**
 FR **Pied perpendiculaire pour tige coulissante**
 ES **Base perpendicular para Barra corredera**
 DE **Winkelfuß für Schubstange**



Ref.	Type	l1	b1	h1	l2	b2	b3	d1	d2	h2	l3
88.921.0200	2	10.5	18	26	13.5	44	22	16	5.2	38	30
88.921.0300	3	19	41.3	33.3	14.4	69.9	34.95	20	5.6	52.4	41.3
88.921.0500	5	31.8	45.2	37	21	76	38	27	8.5	62	62

> **88.924** **TORAX**

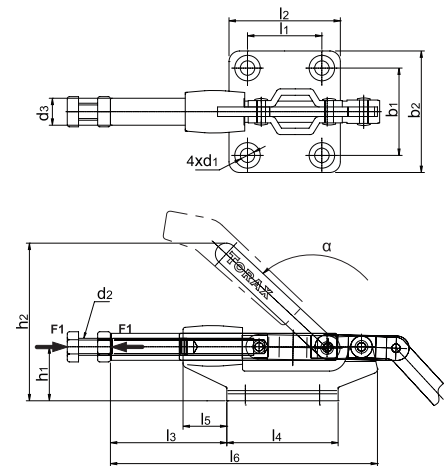
NL **Schuifstang Spanklem, met voet**
 FR **Sauterelle à tige coulissante, à pied**
 ES **Grapas Rápidas Barra corredera, con base**
 DE **Spannklemme mit Schiebbestange, mit Fuß**



Ref.	Type	l1	b1	b2	l2	b3	h1	h2	l3	l4	l5	l6	d1	d3	α1	F1	d2
88.924.0300	3	30	10	42	6.5	57	85	25	136	17	51	23	M20 x 1,5	11	190°	2.5	M6 x 1
88.924.0500	5	30	13	45	8.5	64	120	30	16.55	22	59.5	30	M24 x 1,5	16	185°	4.5	M10 x 1,5

> **88.928** **TORAX**

NL **Schuifstang Spanklem, met voet**
 FR **Sauterelle à tige coulissante, à pied**
 ES **Grapas Rápidas Barra corredera, con base**
 DE **Spannklemme mit Schiebbestange, mit Fuß**



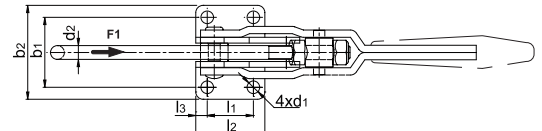
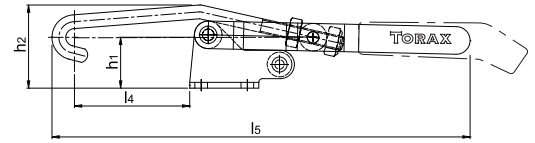
Ref.	Type	b1	l1	b2	l2	h1	h2	d1	d3	l3	l4	l5	l6	α1	F1	d2
88.928.0300	3	41.1	35	57.2	52.4	25.4	74.2	6.7	12.7	54.8	52.4	20.6	125	190°	4	M8 x 1,25
88.928.0500	5	41.1	41.1	57.2	58.8	31.8	93.5	8.3	16	81	58.8	31.8	163	185°	10	M10 x 1,5
88.928.0700	7	50.8	50.8	71.4	73.2	44.4	131.6	8.3	19.2	119.8	73.2	50.8	235	185°	25	M12 x 1,75





> 88.935 TORAX

NL Sluitklem, zonder tegenhouder
 FR Collier de serrage, sans bras support
 ES Pasador de cierre, sin contrasoporte
 DE Beckenendlage, ohne Gegenhalter



Ref.	Type	b1	l1	d1	b2	l2	h1	h2	d2	l4	l5	l3	F1
88.935.0100	1	35	19	5.6	49.2	38.1		36.5	8	58.4	210.2	12.7	2
88.935.0300	3	49.2	31.8	8.7	65.7	47.6	35.1	57.3	9.5	79.4	288	7.9	3
88.935.0500	5	60.3	28.6	10.3	85.7	54	46	66.7	12.7	76.2	335.2	12.7	5

> 88.936 TORAX

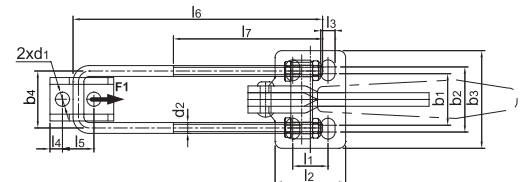
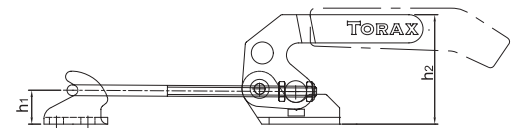
NL Tegenhouder, voor 88.935
 FR Bras support, pour 88.935
 ES Contrasoporte, para 88.935
 DE Gegenhalter, für 88.935



Ref.	Type
88.936.1100	1
88.936.1300	3
88.936.1500	5

> 88.940 TORAX

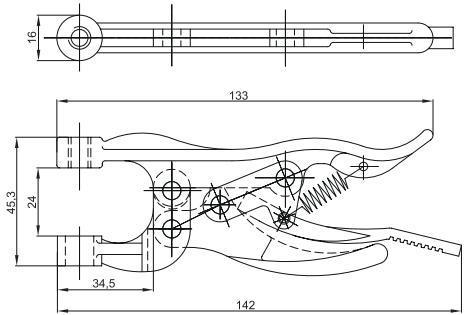
NL Sluitklem, met voet en tegenhouder
 FR Collier de serrage, à pied et bras support
 ES Pasador de cierre, con base y contrasoporte
 DE Beckenendlage, mit Fuß und Gegenhalter



Ref.	Type	b1	l1	b2	l2	b3	l3	b4	l4	l5	d1	h1	h2	l6	l7	F1	d2
88.940.0200	2	19	13	24	26	36	5.2	21	4.6	11.6	5.2	12.5	40.3	92	55	1.6	M4
88.940.0300	3	25	19	32	35	48	6.5	28.5	17.7	14	6.4	21	59	114	60	3.2	M6
88.940.0500	5	36	32	45	51	60	8.5	44.5	8	19	8.5	24.2	82.3	152	60	7	M8

> **88.965** **TORAX**

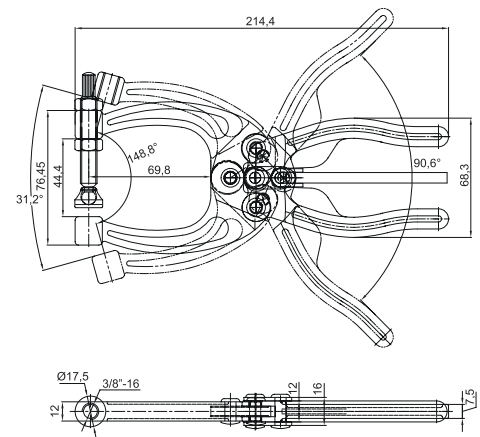
NL **Klemtang**
 FR **Pince de bridage**
 ES **Pinza de sujeción**
 DE **Schweißer zange**



Ref.	Nr.
88.965.0200	1

> **88.966** **TORAX**

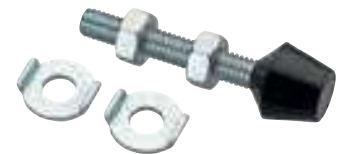
NL **Klemtang**
 FR **Pince de bridage**
 ES **Pinza de sujeción**
 DE **Schweißer zange**



Ref.	Nr.
88.966.0320	1

> **88.991** **TORAX**

NL **Bout met kunststof voet**
 FR **Boulon à pied plastique**
 ES **Perno con base sintética**
 DE **Bolzen mit Kunststoffplatte**



Ref.	d1
88.991.1025	M4x25
88.991.1042	M4x42
88.991.3044	M6x44
88.991.3051	M6x51
88.991.4063	M8x63
88.991.4085	M10x85
88.991.6100	M12x100





> 88.994 **TORAX**



NL **Klemplaat**
 FR **Plaque de serrage**
 ES **Placa de fijación**
 DE **Klemmplatte**

Ref.	d1
88.994.0010	8-M4
88.994.0020	1/4-M6
88.994.0040	5/16-M8
88.994.0050	3/8-M10
88.994.0060	1/2-M12
88.994.0080	5/8-M16



1 SC



1 HSS-E



2



3 SC



3 HSS-E



4



5



6



7



8

> **88.860** **INTERNATIONAL TOOLS**

NL **Set Parallelvlakstukken**
 FR **Jeu de Cales parallèles**
 ES **juego Bases paralelas**
 DE **Satz Parallelunterlagen**



Ref.	Nr.	l1	hxb
88.860.0100	16	100	5-10-15-20 (2 mm) / 6-11-16-21 (3 mm) / 7-12-17-22 (4 mm) / 9-13-19-24 (6 mm)
88.860.0125	24	125	11-16-21-26-31-36 (8 mm) / 13-18-23-28-33-38 (10 mm) / 14-20-25-30-35-40 (12 mm) / 17-22-27-32-37-42 (14 mm)
88.860.0150	24	150	11-16-21-26-31-36 (8 mm) / 13-18-23-28-33-38 (10 mm) / 14-20-25-30-35-40 (12 mm) / 17-22-27-32-37-42 (14 mm)

> **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**



Ref.	Nr.	l1	hxb
88.870.0104	8	100	10-14-18-22-26-30-34-38 (4 mm)
88.870.0128	8	120	12-17-22-25-28-32-36-38 (8 mm)
88.870.0164	9	160	10-14-18-22-26-30-34-38-42 (4 mm)
88.870.0168	8	160	12-17-22-25-28-32-36-38 (8 mm)
88.870.0208	8	200	17-22-26-28-32-36-38-42 (8 mm)

> **89.280** **Phantom**

NL **ECO PRO Set Spantangen ER16 t/m ER40**
 FR **Jeu de Pinces ECO PRO ER16 jusqu'à ER40**
 ES **juego de Pinzas ECO PRO ER16 hasta ER40**
 DE **ECO PRO Satz Spannanzgen ER16 bis ER40**



DIN 6499-B 

Ref.	Nr.	Type	Ø mm
89.280.1600	10	ER 16	1-10
89.280.2000	13	ER 20	1-13
89.280.2500	15	ER 25	2-16
89.280.3200	18	ER 32	3-20
89.280.4000	28	ER 40	3-20





> 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



DIN
 6499-B



Ref.	1	2	3	4
89.282.0225	82.511.0225 MK 2		82.825 Ø 6-10-12-16	82.990.2500
89.282.0332	82.511.0332 MK 3		82.832 Ø6-10-12-16-20	82.990.3200
89.282.0432	82.511.0432 MIK 4		82.832 Ø6-10-12-16-20	82.990.3200
89.282.3032		82.513.3065 SK 30	82.832 Ø6-10-12-16-20	82.990.3200
89.282.4032		82.513.4063 SK 40	82.832 Ø6-10-12-16-20	82.990.3200

> 89.878 Phantom

NL Set Opstopblokken
 FR Jeu de Cales crénelées
 ES Juego Calzos universales
 DE Satz Füllblock



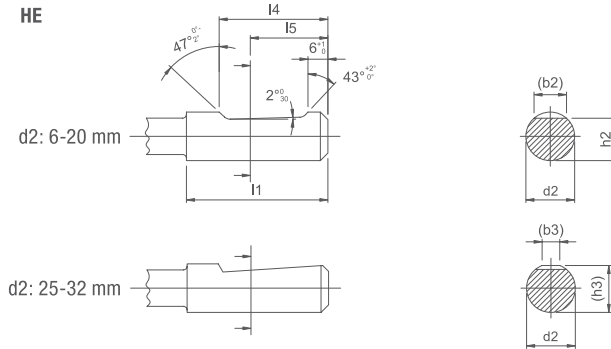
Ref.	Type
89.878.1000	8 x 25-50 mm, 8 x 35-100 mm, 4 x 60-190 mm

NL Cilindrische schacht DIN 6535
 FR Queue cylindrique DIN 6535
 ES Mango cilíndrico DIN 6535
 DE Zylinderschaft DIN 6535

HA



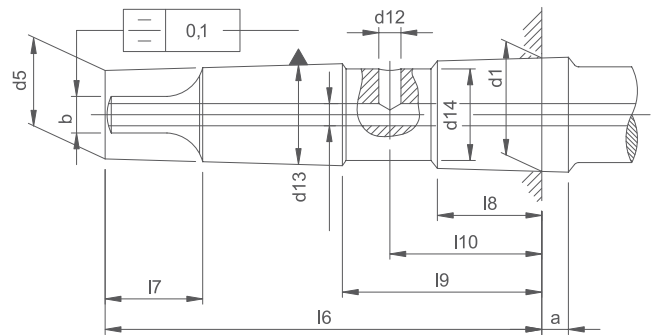
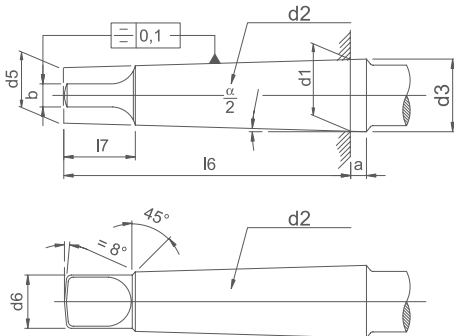
HE



d2	(b2) h1	(b3)	h2	(h3)	l1 +2 0	l4 0 -1	l5	r2
6	4,3		5,1		36	25	18	1,2
8	5,5		6,9		40	28	20	
10	7,1		8,5		45	33	22,5	
12	8,2		10,4		48	36	24	
14	8,1		12,7		50	38	25	
16	10,1		14,2		56	44	32	1,6
18	10,8		16,2					
20	11,4		18,2					
25	13,5	9,3	23,0	24,1				

NL Morsekonus opname volgens DIN 228 Form B
 FR Attachements cône morse selon DIN 228 Forme B
 ES Sujeciones con cono morse según DIN 228 Forma B
 DE Morsekegel-aufnahme nach DIN 228 Form B

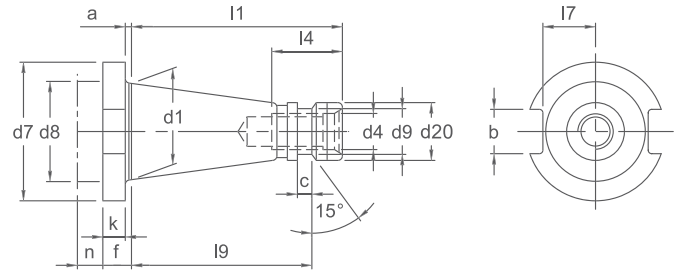
NL Form BK, met inwendig koelkanaal
 FR Forme BK, avec trou d'huile interne
 ES Forma BK, con canal de refrigeración interno
 DE Form BK, mit innerem Kühlkanal



d2	a	b h13	d1	d3	d5	d6	d12	d13	d14 0 -0,1	l6	l7	l8	l9	l10	$\frac{\alpha}{2}$
MK 0	3,0	3,9	9,045	9,2	6,1	6,0				56,5	10,5				1°29'27"
MK 1	3,5	5,2	12,065	12,2	9,0	8,7				62,0	13,5				1°25'43"
MK 2	5,0	6,3	17,780	18,0	14,0	13,5	4,2	4,2	15,0	75,0	16,0	20,0	34,0	27,0	1°25'50"
MK 3	5,0	7,9	23,825	24,1	19,1	18,5	5,0	5,0	21,0	94,0	20,0	29,0	43,0	36,0	1°26'16"
MK 4	6,5	11,9	31,267	31,6	25,2	24,5	6,8	6,8	28,0	117,5	24,0	39,0	55,0	47,0	1°29'15"
MK 5	6,5	15,9	44,399	44,7	36,5	35,7	8,5	8,5	40,0	149,5	29,0	51,0	69,0	60,0	1°30'26"
MK 6	8,0	19,0	63,348	63,8	52,4	51,0	10,2	10,2	56,0	210,0	40,0	81,0	99,0	90,0	1°29'36"

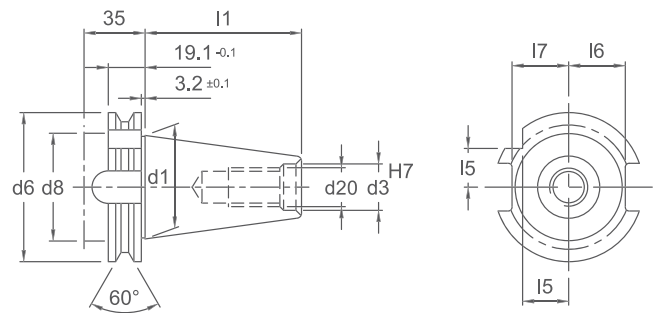


NL **SK-opname volgens DIN 2080**
 FR **Attachements SA selon DIN 2080**
 ES **Sujeción SA según DIN 2080**
 DU **SK-Aufnahmen nach DIN 2080**



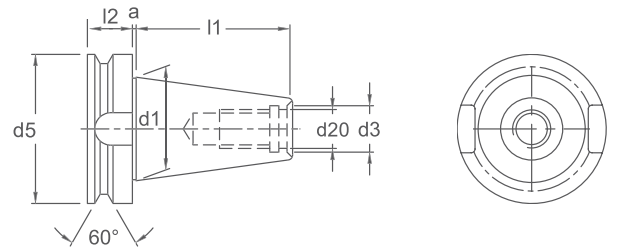
d2	d1	a	b	d20	d4	d7	d8	l1	l4	l7	l9	d9	c	k	f	n
SK 30	31,75	1,6	16,1	17,4	M12	50	36	68,4	24	16,2				8	9,5	9
SK 40	44,45	1,6	16,1	25,3	M16	63	50	93,4	32	22,5	82	21,1	7	10	11,1	11
SK 50	69,85	3,2	25,7	39,6	M24	97,5	78	126,8	47	35,3	115	32	13	12	15,1	16
SK 60	107,95	3,2	25,7	60,2	M30	156	136	206,8	59	60				16	19,1	16

NL **SK-opname volgens DIN 69871-A**
 FR **Attachements SK selon DIN 69871-A**
 ES **Sujeción SK según DIN 69871-A**
 DU **SK-Aufnahmen nach DIN 69871-A**



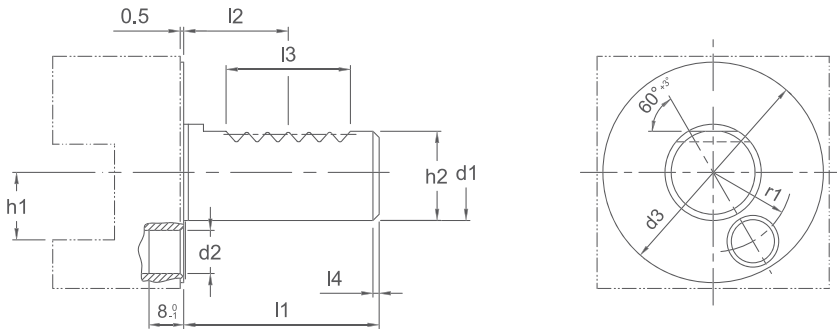
d2	d1	d20	d3	d6	d8	l1	l5	l6	l7
SK 30	31,75	M12	13	50,00	45	47,8	15,00	16,40	19,00
SK 40	44,45	M16	17	63,55	50	68,40	18,50	22,80	25,00
SK 45	57,15	M20	21	82,55	63	82,70	24,00	29,10	31,30
SK 50	69,85	M24	25	97,50	80	101,75	30,00	35,50	37,70

NL **BT-Oopname volgens MAS 403-BT**
 FR **Attachements BT selon MAS 403-BT**
 ES **Sujeción BT según MAS 403-BT**
 DU **BT-Aufnahmen nach MAS 403-BT**



d2	d1	l1	a	l2	d20	d3	d5
BT 30	31,75	48,4	2	22	M12	12,5	46
BT 35	38,1	56,5	2	22	M12	13	53
BT 40	44,45	65,4	2	27	M16	17	63
BT 45	57,15	82,8	3	33	M20	21	85
BT 50	69,85	101,8	3	38	M24	25	100

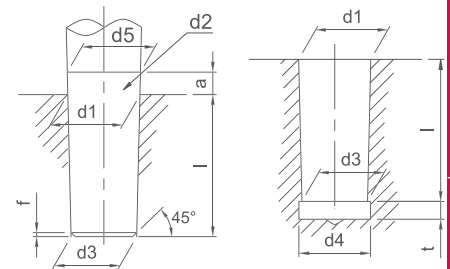
NL **VDI-opnames volgens DIN 69880**
 FR **Porte-outils VDI selon DIN 69880**
 ES **Portaherramientas VDI según DIN 69880**
 DE **VDI-Aufnahmen nach DIN 69880**



d1 h6	l1 +0,3	d2	Tol.	d3	h1 max	h2 +0,1	l2 +0,05	l3 min	l4 1	r1 +0,02
16	32	8	H6	40	12	15	12,7	16	2	14,5
20	40	10	H6	50	16	18	21,7	24	2	18
25	48	10	H6	58	16	23,5	21,7	24	2	21
30	55	14	H8	68	20	27	29,7	40	2	25
40	63	14	H8	83	25	36	29,7	40	3	32
50	78	16	H8	98	32	45	35,7	48	3	37
60	94	16	H8	123	32	55	43,7	56	4	48

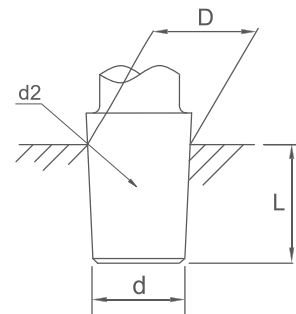
NL **Boorstift-opnames volgens DIN 238**
 FR **Attachements pour mandrin porte-forets selon DIN 238**
 ES **Sujeción espiga para portabrocas según DIN 238**
 DE **Bohrfutterkegel-Aufnahmen nach DIN 238**

d2	a	d1	d5	d3	d4	f	l	t
B6	3	6,35	6,5	5,85	6,5	0,5	10	3
B10	3,5	10,094	10,3	9,4	9,8	1	14,5	3,5
B12	3,5	12,065	12,2	11,1	11,5	1	18,5	3,5
B16	5	15,733	16,0	14,5	15,0	1,5	24,0	4,0
B18	5	17,780	18,0	16,2	16,8	1,5	25,0	4,0
B18 short	5	17,431	18,0	16,2	16,8	1,5	25,0	4,0
B22	5	21,793	22,0	19,8	20,5	2,0	40,5	4,5
B25	5	23,825	24,1	21,3	22,0	2,0	50,5	4,5



NL **Boorstift-opnames volgens Jacobs**
 FR **Attachements pour mandrin porte-forets selon Jacobs**
 ES **Sujeción espiga para portabrocas según Jacobs**
 DE **Bohrfutterkegel-Aufnahmen nach DIN Jacobs**

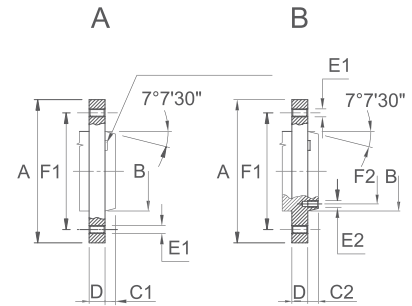
d2	D	d	L	Con. (%)
J1	9,754	8,469	16,669	7,709
J2 short	13,940	12,386	19,050	8,155
J2	14,199	12,386	22,225	8,155
J33	15,850	14,327	25,400	6,350
J6	17,170	15,852	25,400	5,191
J3	20,599	18,951	30,956	5,325





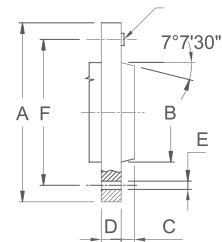
- NL **Machinespilneuzen volgens DIN 55026 (bevestiging van voren)**
 FR **Broches de machine selon DIN 55026 (fixation par l'avant)**
 ES **Cabezales de torno según DIN 55026 (montaje delantero)**
 DE **Maschinenspindeln nach DIN 55026 (Befestigung von vorne)**

Nr.	A	B max.	C1	C2	D	E1	F1	E2	F2
3	9212	53,983	11	-	16	3xM10	70,6	-	-
4	108	63,251	11	-	20	11xM10	82,6	-	-
5	133	82,753	13	14,288	22	11xM10	104,8	8xM10	61,9
6	165	106,385	14	15,875	25	11xM12	133,4	8xM12	82,6
8	210	139,731	16	17,462	28	11xM16	171,4	8xM16	111,1
11	280	196,883	18	19,05	35	11xM20 (11xM18)	235	8xM20 (8xM18)	165,1
15	380	285,791	19	20,638	42	12xM24 (12xM22)	330,2	11xM24 (11xM22)	247,6
20	520	412,795	21	22,225	48	12xM24	463,6	11xM24	398,3



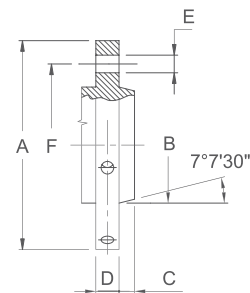
- NL **Machinespilneuzen met Bajonetbevestiging volgens DIN 55027**
 FR **Broches de machine avec fixation Baionnette selon DIN 55027**
 ES **Cabezales de torno con fijación Bayoneta según DIN 55027**
 DE **Maschinenspindeln mit Bajonet-Befestigung nach DIN 55027**

Bajonet						
Nr.	A	B max.	C	D	E	F
3	102	53,983	11	16	3 x 21	75
4	112	63,251	11	20	3 x 21	85
5	135	82,573	13	22	4 x 21	104,8
6	170	106,385	14	25	4 x 23	133,4
8	220	139,731	16	28	4 x 29	171,4
11	290	196,883	18	35	6 x 36	235
15	400	285,791	19	42	6 x 43	330,2
20	540	412,795	21	48	6 x 43	463,6



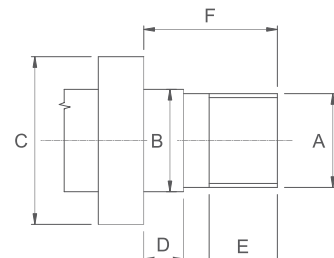
- NL **Machinespilneuzen met Camlockbevestiging volgens DIN 55029**
 FR **Broches de machine avec fixation Camlock selon DIN 55029**
 ES **Cabezales de torno con fijación Camlock según DIN 55029**
 DE **Maschinenspindeln mit Camlock-Befestigung nach DIN 55029**

Camlock						
Nr.	A	B max.	C	D	E	F
3	92	53,983	11	32	3 x 15,1	70,6
4	117	63,251	11	34	3 x 16,7	82,6
5	146	82,573	13	38	6 x 19,8	104,8
6	181	106,385	14	45	6 x 23	133,4
8	225	139,731	16	50	6 x 31	171,4
11	298	196,883	18	60	6 x 36	235
15	403	285,791	19	70	6 x 35,7	330,2



- NL **Machinespilneuzen met draad volgens DIN 800**
 FR **Broches de machine avec filetage selon DIN 800**
 ES **Cabezales de torno con roscado según DIN 800**
 DE **Maschinenspindeln mit Gewinde nach DIN 800**

M						
A	Bg5	C min.	D	E	F	
M20	21	30	6,3	10	20	
M24	25	36	8	12	24	
M33	34	50	9	14	30	
M39	40	56	10	16	35	
M45	46	67	11	18	40	
M52	55	80	12	20	45	
M60	62	90	14	22	50	
M76x6	78	112	16	30	63	
M105x6	106	150	20	40	80	



NL **Machinespindelneuzen volgens ANSI B 5.9**
 FR **Broches de machine selon ANSI B 5.9**
 ES **Cabezales de torno según ANSI B 5.9**
 DE **Maschinenspindeln nach ANSI B 5.9**

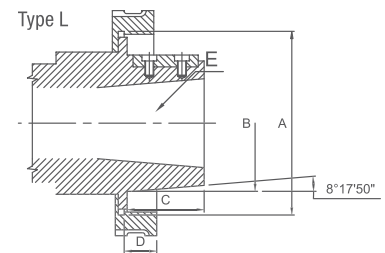
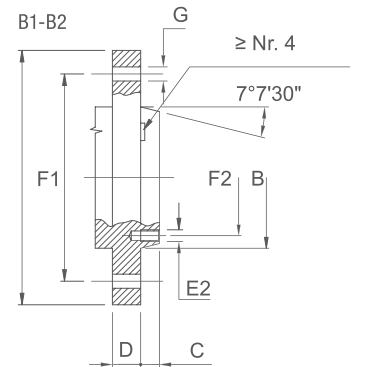
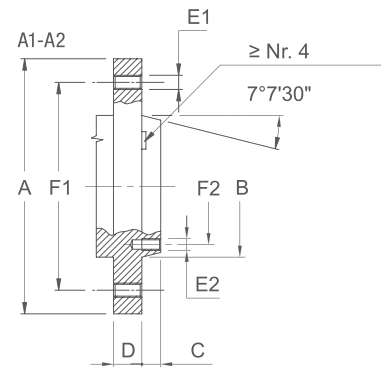
A1								
Nr.	A	B max.	C -0,025	D	E1	F1	E2	F2
5	133,4	82,275	14,288	22,2	11 x 7/16-14 UNC	104,8	8 x 7/16-14 UNC	61,9
6	165,1	106,390	15,875	25,4	11 x 1/2-13 UNC	133,4	8 x 1/2-13 UNC	82,6
8	209,5	139,735	17,462	28,6	11 x 5/8-11 UNC	171,4	8 x 5/8-11 UNC	111,1
11	279,4	196,885	19,05	34,9	11 x 3/4-10 UNC	235	8 x 3/4-10 UNC	165,1
15	381	285,8	20,638	41,3	12 x 7/8-9 UNC	330,2	11 x 7/8-9 UNC	247,6

A2						
Nr.	A	B max.	C -0,025	D	E1	F1
3	92,1	53,985	11,1	15,9	3 x 7/15-14 UNC	70,66
4	108	63,525	11,1	19	11 x 7/16-14 UNC	82,55
5	133,4	82,575	12,7	22,2	11 x 7/16-14 UNC	104,8
6	165,1	106,39	14,3	25,4	11 x 1/2-13 UNC	133,4
8	209,5	139,735	15,9	28,6	11 x 5/8-11 UNC	171,4
11	279,4	196,885	17,5	34,9	11 x 3/4-10 UNC	235
15	381	285,8	19	41,3	12 x 7/8-9 UNC	330,2

B1							
Nr.	A	B max.	C -0,025	D	G	F1	F2
5	133,4	82,275	14,288	22,2	11 x 7/16-14 UNC	104,8	8 x 7/16-14 UNC
6	165,1	106,390	15,875	25,4	11 x 1/2-13 UNC	133,4	8 x 1/2-13 UNC
8	209,5	139,735	17,462	28,6	11 x 5/8-11 UNC	171,4	8 x 5/8-11 UNC
11	279,4	196,885	19,05	34,9	11 x 3/4-10 UNC	235	8 x 3/4-10 UNC
15	381	285,8	20,638	41,3	12 x 7/8-9 UNC	330,2	11 x 7/8-9 UNC

B2						
Nr.	A	B max.	C	D	G	F1
3	92,1	53,985	11,1	15,9	3 x 11,9	70,66
4	108	63,525	11,1	19	11 x 11,9	82,55
5	133,4	82,575	12,7	22,2	11 x 11,9	104,8
6	165,1	106,39	14,3	25,4	11 x 13,5	133,4
8	209,5	139,735	15,9	28,6	11 x 16,7	171,4
11	279,4	196,885	17,5	34,9	11 x 20,2	235
15	381	285,8	19	41,3	12 x 23,4	330,2

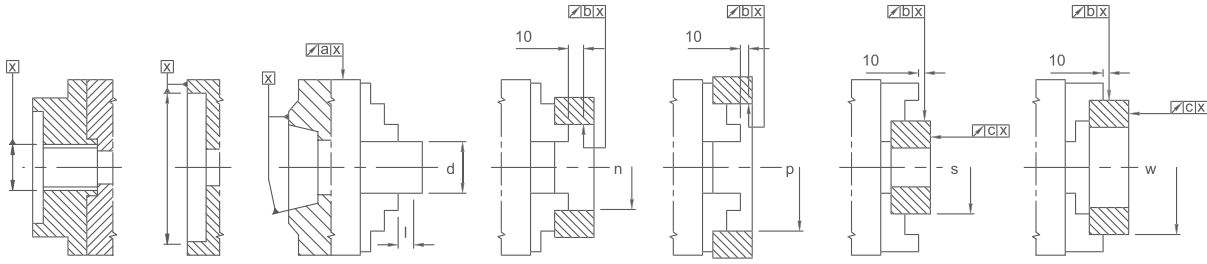
Type L, con. 7 : 24					
Nr.	A	B + 0,051	C	D	E
L00	3 3/4-6 UNS	69,850	50,800	14,288	9,525 x 9,525 x 38,1
L0	4 1/2-6 UNS	82,550	60,325	15,875	9,525 x 9,525 x 44,45
L1	6 - 6 UNS	104,775	73,025	19,050	15,875 x 15,875 x 60,32
L2	7 3/4-5 UNS	133,350	85,725	25,400	19,05 x 19,05 x 73,02
L3	10 3/8-4 UNS	165,100	94,425	28,575	25,4 x 25,4 x 82,55





REF. 85.410, 85.420, 85.421, 85.422, 85.423, 85.450, 85.500, 85.510

NL Centreernauwkeurigheid voor klauwplaten
 FR Tolérance de centrage pour les mandrins
 ES Tolerancia de centrado para los platos de garras
 DE Zentriergenauigkeit von Backenfutter



\emptyset	80 - 85	100 - 110	125 - 140	160	200	250	315	400	500	630	800
d	10	10	18	18	30	30	52	53	75	75	160
	-	14	25	30	40	53	75	100	100	125	200
l	14	18	30	40	53	75	100	125	125	160	250
n	40	40	60	60	80	80	120	120	160	160	160
p	60	75	100	135	162	200	252	282	282	325	500
s	35	50	62	88	96	150	210	250	300	400	400
w + 85.855	63	80	100	100	160	160	250	250	400	400	500
w + 85.840	-	-	120	150	185	225	300	350	400	400	500

NL Centreernauwkeurigheid voor stalen en gietijzeren klauwplaten 80 - 400 mm
 FR Tolérance de centrage pour les mandrins en acier et en fonte 80 - 400 mm
 ES Tolerancia de centrado para los platos de garras de acero y de fundición 80 - 400 mm
 DE Zentriergenauigkeit von Stahl- und Gusseisenbackenfutter 80 - 400 mm

	Tol. (mm)				
	85 - 100	125- 160	200 - 250	315	400
a	0,020	0,030	0,040	0,050	0,060
b	0,025	0,035	0,045	0,055	0,065
c	0,015	0,020	0,025	0,030	0,030

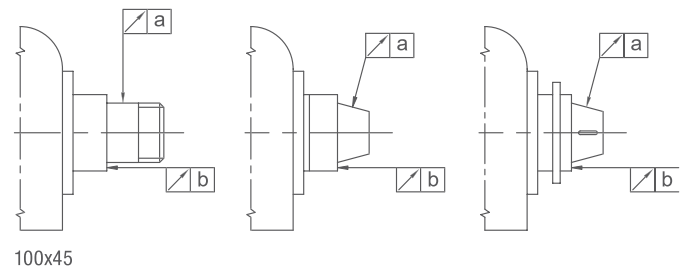
NL Centreernauwkeurigheid voor gietijzeren klauwplaten 500 - 800 mm
 FR Tolérance de centrage pour les mandrins en fonte 500 - 800 mm
 ES Tolerancia de centrado para los platos de garras de fundición 500 - 800 mm
 DE Zentriergenauigkeit von Gusseisenbackenfutter 500 - 800 mm

	Tol. (mm)		
	500	630	800
a	0,10	0,10	0,15
b	0,075	0,10	0,15
c	0,05	0,05	0,06

REF. 85.410, 85.420, 85.422, 85.423, 85.500, 85.510

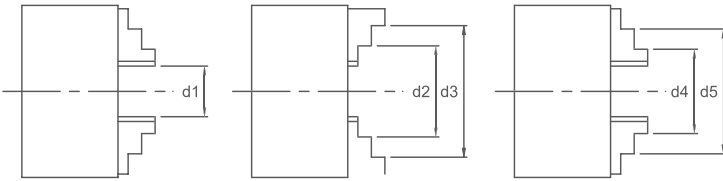
NL Centreernauwkeurigheid machinespilneuzen
 FR Tolérance de centrage broches de machine
 ES Tolerancia de centrado cabezales de torno
 DE Zentriergenauigkeit Maschinenspindeln

	Tol. (mm)	
	80 - 160	200 - 800
a	0,003 mm	0,005 mm
b	0,003 mm	0,005 mm



REF. 85.410, 85.420, 85.422, 85.423, 85.500, 85.510

- NL **Spanbereik voor klauwplaten met vaste bekken**
- FR **Capacité de serrage des mandrins avec mors fixes**
- ES **Capacidad de fijación de platos de garras con garra fija**
- DE **Spannbereich von Backenfutter mit fester Backen**



	Ø (mm)													
	80	85	100	110	125	140	160	200	250	315	400	500	630	800
d1	2 - 27	2 - 40	3 - 33	3 - 33	3 - 50	3 - 50	3 - 64	4 - 90	5 - 118	5 - 131	10 - 180	20 - 235	30 - 335	150 - 482
d2	25 - 50	32 - 70	36 - 62	32 - 62	39 - 83	39 - 83	50 - 107	60 - 145	77 - 188	90 - 215	103 - 272	140 - 357	180 - 487	302 - 634
d3	45 - 71	64 - 102	62 - 93	62 - 93	80 - 125	80 - 125	98 - 160	130 - 200	160 - 250	190 - 315	230 - 400	276 - 500	345 - 630	468 - 800
d4	22 - 46	22 - 60	25 - 56	25 - 56	34 - 74	34 - 74	42 - 100	52 - 135	62 - 174	78 - 200	85 - 252	120 - 335	160 - 465	282 - 614
d5	45 - 69	54 - 92	56 - 87	56 - 87	72 - 115	72 - 115	94 - 154	120 - 202	145 - 256	172 - 299	210 - 380	245 - 476	325 - 630	448 - 780

- NL **Spanbereik voor klauwplaten met gedeelde bekken**
- FR **Capacité de serrage des mandrins avec mors réglables**
- ES **Capacidad de fijación de platos de garras con garra móvil**
- DE **Spannbereich von Backenfutter mit geteilte Backen**

	Ø (mm)									
	125	140	160	200	250	315	400	500	630	800
d1	3 - 50	3 - 50	3 - 64	4 - 90	5 - 118	5 - 131	10 - 180	20 - 235	30 - 335	150 - 482
d2	52 - 96	52 - 96	62 - 121	72 - 156	86 - 197	103 - 226	127 - 294	110 - 400	120 - 570	240 - 724
d3	95 - 125	95 - 125	115 - 160	133 - 200	160 - 250	190 - 315	230 - 400	190 - 500	200 - 630	316 - 800
d4	34 - 76	34 - 76	42 - 97	50 - 130	58 - 165	65 - 182	72 - 228	120 - 410	140 - 590	252 - 736
d5	75 - 118	75 - 118	88 - 146	105 - 190	125 - 135	145 - 265	165 - 329	200 - 485	210 - 665	328 - 812

- NL **Maximaal toegestane toerental (omw/min)**
- FR **Vitesse de rotation maximale (tour/min)**
- ES **Número de revoluciones máximo (rev/min)**
- DE **Zulässige Höchstzahl (U/min)**

	n = rpm										
Ref.	80 - 85	100 - 110	125	140 - 160	200	250	315	400	500	630	800
85.410 (3200)	4000	3500	3200	3000	2500	2000	1500	1000	700	500	300
85.500 (3600)	4000	3500	3200	3000	2500	2000	1500	1000	700	500	300
85.420 85.422, 85.423	6000	5200	4800	4500	4000	3500	2800	2000			
85.510 (3700)	6000	5200	4800	4500	4000	3500	2800	2000			

- NL **Draaimoment aan sleutel (Nm)**
- FR **Couple de rotation de clé (Nm)**
- ES **Par de apriete (Nm)**
- DE **Drehmoment am Schlüssel (Nm)**

	Ø (mm)										
Nm	80 - 85	100 - 110	125	140 - 160	200	250	315	400	500	630	800
	35	50	75	120	160	180	200	280	360	460	500

- NL **Totale spankracht (daN) voor klauwplaten**
- FR **Force de serrage totale (daN) pour serrage des mandrins**
- ES **Fuerza de sujeción total (daN) para platos de garras**
- DE **Gesamtspannkraft (daN) für Backenfutter**

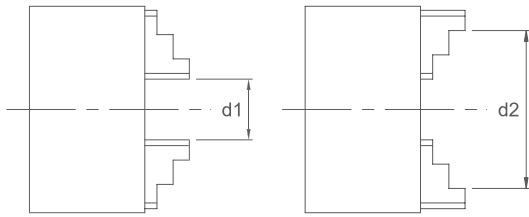
	Ø (mm)										
daN	80 - 85	100 - 110	125	140 - 160	200	250	315	400	500	630	800
	1000	1700	2400	3100	3700	4600	5500	6500	7200	8000	9000





REF. 85.600, 85.602

NL **Spanbereik voor klauwplaten met omkeerbekken**
 FR **Capacité de serrage des mandrins avec mors réversibles**
 ES **Capacidad de fijación de platos con garras reversibles**
 DE **Spannbereich von Backenfutter mit Umkehrbacken**



100x45

	Ø (mm)							
	85	100	125	150	160	200	250	315
d1	3	3	8	8	8	10	10	15
d2	85	100	125	150	160	200	250	315
	350	400	500	630	800	915	1000	1250
d1	15	20	45	50	50	120	170	170
d2	350	400	500	630	800	915	1000	1250

NL **Maximaal toegestane toerental voor stalen klauwplaten (omw/min) - voor symmetrisch ingespannen werkstukken**
 FR **Vitesse de rotation maximale pour les mandrins en acier (tour/min) - pour le serrage concentrique des pièces**
 ES **Número de revoluciones máximo para los platos de garras de acero (rev/min) - para la sujeción concéntrica de las piezas**
 DE **Zulässige Höchstzahl von Stahlbackenfutter (U/min) - für symmetrisch gespannte Werkstücke**

n = rpm							
85	100	125	150	160	200	250	315
4000	3800	3500	3200	3200	2500	2000	1500
350	400	500	630	800	915	1000	1250
1500	1100	700	550	450	200	200	150

NL **Maximaal toegestane toerental voor gietijzeren klauwplaten (omw/min) - voor symmetrisch ingespannen werkstukken**
 FR **Vitesse de rotation maximale pour les mandrins en fonte (tour/min) - pour le serrage concentrique des pièces**
 ES **Número de revoluciones máximo para los platos de garras de fundición (rev/min) - para la sujeción concéntrica de las piezas**
 DE **Zulässige Höchstzahl von Gusseisenbackenfutter (U/min) - für symmetrisch gespannte Werkstücke**

n = rpm							
85	100	125	150	160	200	250	315
					1800	1500	1200
350	400	500	630	800	915	1000	1250
1200	800	500	400	300	150	150	100

- NL Instelmomenten van tapinzetstukken met ratel (Nm)
- FR Tableau des réglages pour les têtes à tarauder à limiteur de couple (Nm)
- ES Tabla de los momentos torsor para casquillos para roscado con embrague de seguridad (Nm)
- DE Einstellmomente von Gewindebohrereinsatzstück mit Sicherheitskupplung (Nm)

M	Type 19/1	Type 31/2	Type 48/3
M2	0,6		
M3	1		
M3,5	1,5 - 2		
M4	2-3		
M5	5-6		
M6-M7	7-9	7-9	
M8-M9	16-19	16-19	
M10-M11	27-30	27-30	
M12	37-40	37-40	37-40
M14	37-40	50-53	50-53
M16	37-40	55-58	55-58
M18		85-90	85-90
M20		100-106	100-106
M22		100-106	110-115
M24		100-106	140-150
M27		100-106	150-160
M30			240-250
M33			260-270
M36			260-270
M39			260-270

