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Phantom

INTERNATIONAL
TOOLS

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PORTA-HERRAMIENTAS
WERKZEUGAUFNAHMEN

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ICONEN ICONES ICONOS PIKTOGRAMME

	NL	FR	ES	DE		NL	FR	ES	DE
DIN 225	DIN norm	Norme DIN	Norma DIN	DIN Norm	TYPE A	Standaard uitvoering	Version standard	Versión estándar	Standard Ausführung
Phantom	Phantom norm	Norme Phantom	Norma Phantom	Werksnorm	HRC 60^{±2}	Oppervlaktehardheid HRC 60±2	Traitement de surface HRC 60±2	Tratamiento de superficie HRC 60±2	Oberflächengehärtet HRC 60±2
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	AT3	Tolerantieklasse AT3	Classe de tolérance AT3	Clase de tolerancia AT3	Toleranzklasse AT3
DIN 6535-HA	Cilindrische schacht	Queue cylindrique	Mango cilíndrico	Zylinderschaft	0,005	Rondloopnauwkeurig 0,005 mm	Concentricité 0,005 mm	Concentricidad 0,005 mm	Rundlaufgegaugtheit 0,005 mm
DIN 228 B	Morse Konus Opname	Cône morse	Mango cónico	Morsekegel		Klopvaste uitvoering	Tenue aux percussions	Resistente a percusiones	Schlagfester Ausführung
	ER Spantangen volgens DIN 6499	Pinces ER selon DIN 6499	Pinzas ER según DIN 6499	ER Spannanzgen gemäss DIN 6499	110 Nm	Maximale spankracht 110 Nm	Couple de serrage maximal 110 Nm	Fijación máxima 110 Nm	Maximalspannkraft 110 Nm
B1	Uitvoering VDI-houder	Type Porte-Outils VDI	Tipo portaherramientas VDI	Ausführung VDI-Halter		Tandkransleutel	Clé pour mandrin porte-forets	Llave para portabrocas	Schlüssel für Zahnkranzbohrfutter
BAJONET	Bajonet opname	Fixation baïonnette	Fijación bayoneta	Bajonet Aufnahme		Spansleutel	Clé de mandrin	Llave de apriete	Spannschlüssel
CAM-LOCK	Camlock opname	Fixation Camlock	Fijación Camlock	Camlock Aufnahme	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
TYPE XP	Precisie uitvoering	Version de précision	Versión de precisión	Präzision-ausführung	F7	Tolerantie boringdiameter	Tolérance d'alésage	Tolerancia de escariado	Toleranz Borungsdurchmesser
SK	Opname volgens DIN 2080	A queue selon DIN 2080	Con cono según DIN 2080	Aufnahme gemäß DIN 2080	n6	Tolerantie buitenmaat	Tolérance du diamètre externe	Tolerancia diámetro externo	Toleranz Aussen-durchmesser
SK	Opname volgens DIN 69871	A queue selon DIN 69871	Con cono según DIN 69871	Aufnahme gemäß DIN 69871	HSK-A	Opname HSK	Aufnahme gemäß HSK	Con cono según HSK	A queue selon HSK
MAS-BT	Opname volgens MAS 403-BT	A queue selon MAS 403-BT	Con cono según MAS 403-BT	Aufnahme gemäß MAS 403-BT	AD	AD	AD	AD	AD
VDI	Opname volgens DIN 69880	A queue selon DIN 69880	Con cono según DIN 69880	Aufnahme gemäß DIN 69880	AD/B	AD/B	AD/B	AD/B	AD/B
	Cilindrische schacht	Queue cylindrique	Mango cilíndrico	Zylinderschaft					

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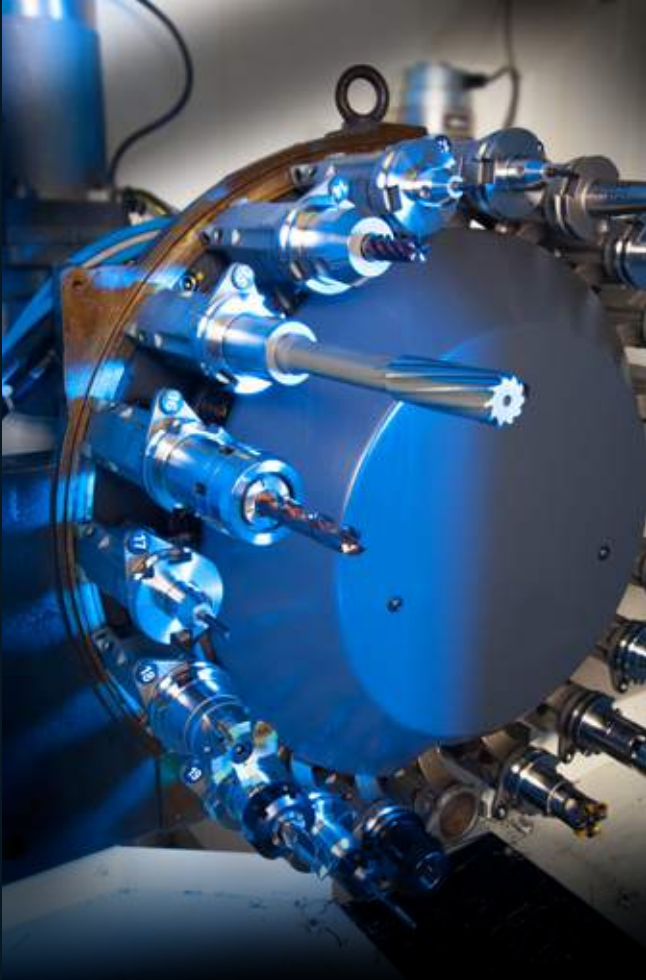


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Phantom est une marque d'excellente qualité pour les outils de serrage et de bridage dédiés à l'usinage du métal. Grâce à la qualité Phantom et à notre support technique nous vous permettons d'accéder à un meilleur rendement : Il n'y a pas de limites à ce que vous pouvez réaliser !

Phantom es la marca de alta calidad para herramientas de corte y sujeción para mecanizado del metal. Con la calidad Phantom y nuestro soporte técnico, le ofrecemos una mayor productividad: ¡No hay fin a lo que se pueda hacer!

Phantom ist die A-Marke einer absoluten Spitzenqualität für die Zerspanung und für Spanwerkzeuge der Metalbearbeitung. Mit der Phantom-Qualität und unserer technischen Unterstützung bieten wir Ihnen eine sehr hohe Produktivität: Es gibt kein Ende dessen, was Sie tun können!

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Phantom

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NL Bright Finish
FR Finition polie
ES Acabado brillante
DE Helle Oberfläche

NL Hoge rondloop nauwkeurigheid
FR Haute précision de tolérance
ES Alta precisión
DE Hohe Laufgenauigkeit

NL Diepgekoeld -90° C
FR Refroidissement à très
basse température (-90° C)
ES Endurecido en frío a -90° C
DE Tief abgekühlt -90° C

NL Fijn gebalanceerd
FR Bien équilibré
ES Gran equilibrado
DE Fein ausbalanciert

Balluff



- > **PHANTOM GEREEDSCHAPSPANNEN:
EXTREEM LANGE STANDTIJD MET BEHOUD VAN PRECISIE**
- > **OUTILS DE SERRAGE PHANTOM :
DURÉE DE VIE TRÈS LONGUE ET PRÉCISION MAINTENUE**
- > **PHANTOM HERRAMIENTAS DE SUJECIÓN:
LARGA VIDA ÚTIL CON ALTA PRECISIÓN**
- > **PHANTOM SPANNWERKZEUGE:
EXTREM LANGE STANDZEIT BEI GLEICHBLEIBENDER PRÄZISION**



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
















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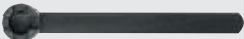
























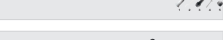
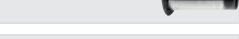





NL Spannen
FR Serrage et Bridage
ES Fijar y Sujetar
DE Spannwerkzeuge

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SC 3
HSS-E 3
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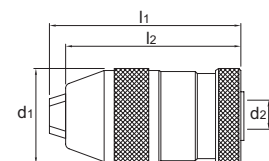
SC 1
HSS-E 1
2
SC 3
HSS-F 3
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> 84.176	Phantom	DIN 238	MAS-BT	G6,3 12.000 RPM		P. 43
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> **81.200** **Phantom**

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

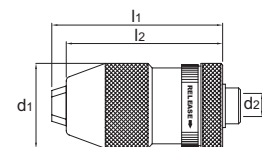


TYPE A

Ref.	Ø mm	d2	d1	l1	l2	1
81.200.0620	0,4-6,5	3/8"-24 UNF	33	74	68	NA
81.200.0810	0,8-8	B10	33	70	65	81.412.0800
81.200.0812	0,8-8	B12	33	70	65	81.412.0800
81.200.0820	0,8-8	3/8"-24 UNF	33	74	68	81.412.0800
81.200.0825	0,8-8	1/2"-20 UNF	33	74	68	81.412.0800
81.200.0891	0,8-8	J1	33	70	65	81.412.0800
81.200.1012	0,8-10	B12	39	80	73	81.412.0800
81.200.1016	0,8-10	B16	39	80	73	81.412.0800
81.200.1020	0,8-10	3/8"-24 UNF	39	80	73	81.412.0800
81.200.1025	0,8-10	1/2"-20 UNF	39	80	73	81.412.0800
81.200.1092	0,8-10	J2	39	80	73	81.412.0800
81.200.1094	0,8-10	J33	39	80	73	81.412.0800
81.200.1312	1-13	B12	44	95	86	81.412.1300
81.200.1316	1-13	B16	47	102	92	81.412.1300
81.200.1320	2-13	3/8"-24 UNF	44	95	86	81.412.0800
81.200.1325	2-13	1/2"-20 UNF	44	95	86	81.412.0800
81.200.1392	1-13	J2	44	95	86	81.412.1300
81.200.1396	1-13	J6	44	95	86	81.412.1300
81.200.1616	3-16	B16	51	105	95	81.412.1300
81.200.1618	3-16	B18	51	115	102	81.412.1300
81.200.1625	3-16	1/2"-20 UNF	51	115	102	81.412.1300
81.200.1630	3-16	5/8"-16 UN	51	115	102	81.412.1300
81.200.1696	3-16	J6	51	115	102	81.412.1300
81.200.1762	5-20	B18	64	140	127	81.412.1600
81.200.1828	5-20	B22	64	140	127	81.412.1600
81.200.1894	5-20	J3	64	140	127	81.412.1600

> **81.210** **Phantom**

NL Zelfspannende Boorhouder, kloppvast, 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	1
81.210.1012	0,8-10	B12	38	85	79	81.412.0800
81.210.1025	0,8-10	3/8"-24 UNF	38	85	79	81.412.0800
81.210.1030	0,8-10	1/2"-20 UNF	38	85	79	81.412.0800
81.210.1316	1,5-13	B16	44	100	92	81.412.1000
81.210.1330	1,5-13	1/2"-20 UNF	44	100	92	81.412.0800

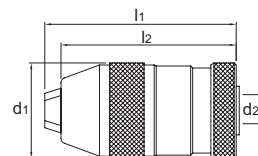


> 81.230 Phantom

- 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



1



TYPE P
 0,04

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

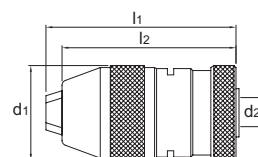
> 81.250 Phantom

- 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



1

2

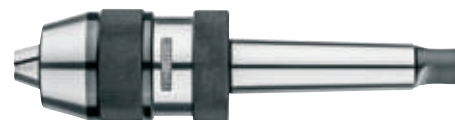


TYPE XP
 0,04

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

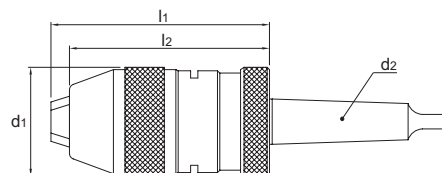
> 81.300 Phantom

- 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



1

2

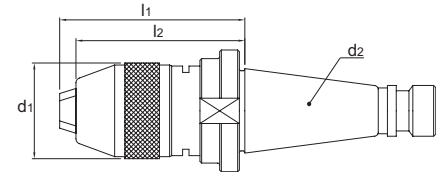
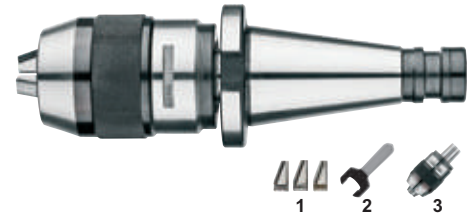


DIN 228 B TYPE XP
 0,04

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

> **81.303 Phantom**

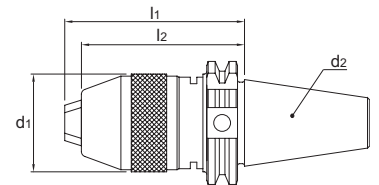
NL Zelfspannende Precisieboorhouder, type XP, SK volgens DIN 2080
 FR Mandrin porte-forets de précision auto-serrant, type XP, SA selon DIN 2080
 ES Portabroca de precisión, cierre automático, tipo XP, SK según DIN 2080
 DE Selbstspannende Präzisionsbohrfutter, Typ XP, SK nach DIN 2080



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

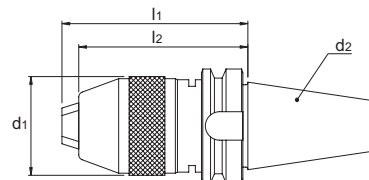


Ref.	Ø mm	d2	d1	l1	l2	1	2	3
81.304.4013	1-13	SK40	48	91	80	81.412.1300	81.413.1300	81.414.1300
81.304.4016	3-16	SK40	55	108	97	81.412.1600	81.413.1600	81.414.1640
81.304.5013	1-13	SK50	48	89	78	81.412.1300	81.413.1300	81.414.1300
81.304.5016	3-16	SK50	55	89	76	81.412.1600	81.413.1600	81.414.1650



> 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

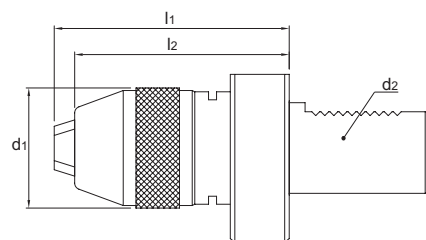


TYPE MAS-BT
 XP

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

> 81.308 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

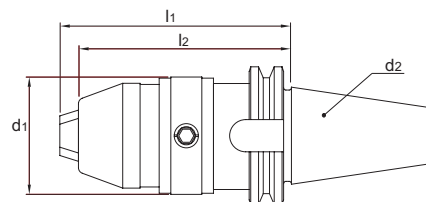


TYPE VDI
 XP

Ref.	Ø mm	d2	d1	l1	l2	1	2	3
81.308.3013	1-13	SK30	48	105	94	81.412.1300	81.413.1300	81.414.1300
81.308.4013	1-13	SK40	48	92	85	81.412.1300	81.413.1300	81.414.1300
81.308.4016	3-16	SK40	55	96	85	81.412.1600	81.413.1600	81.414.1640

> 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 Spannschlüssel, SK nach DIN 69871

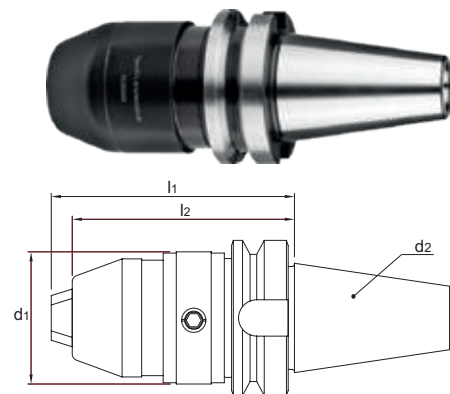


TYPE SK
 XPF 110 Nm

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

> **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 Spannschlüssel, BT nach MAS 403 BT**



TYPE XPF **MAS-BT** **0,05** **110 Nm**

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

> **81.412 Phantom**

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

Ref.	Ø mm	Type	Ref.	Ø mm	Type
81.412.0600	0,3-6,5	6,5P-6,5XP	81.412.1300	1-13	13P-13XP
81.412.0800	0,3-8	8P-8XP	81.412.1600	3-16	16P-16XP
81.412.1000	0,5-10	10P-10XP			

> **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**



Ref.	Type	l1	d1	Ref.	Type	l1	d1
81.413.0600	6,5XP	140	27	81.413.1300	13XP	165	38
81.413.0800	8XP	165	28	81.413.1600	16XP	165	43
81.413.1000	10XP	165	34				

> **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**

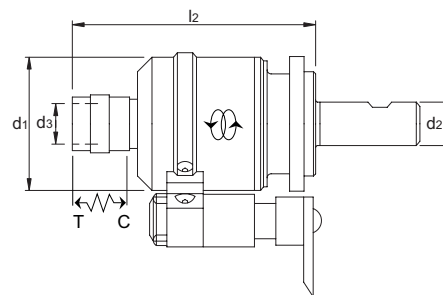


Ref.	Ø mm	Type	Ref.	Ø mm	Type
81.414.0800	0,3-8	8XP	81.414.1640	3-16	16XP/40
81.414.1300	1-13	13XP	81.414.1650	3-16	16XP/50



> 81.532 Phantom

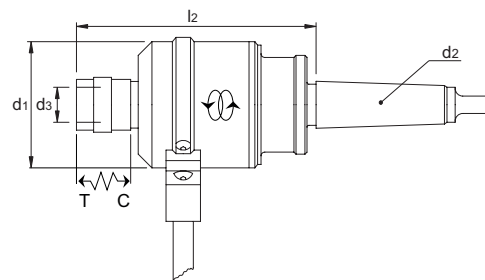
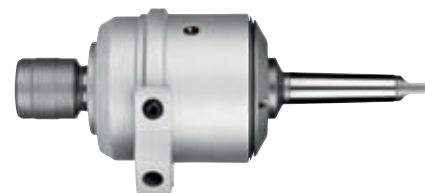
- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, Weldon, voor gebruik met tapinzetstukken
- FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, Weldon, pour douilles porte-tarauds
- ES Aparato para roscar, con dispositivo de inversión, con compensación 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

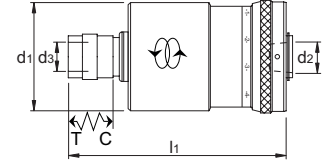
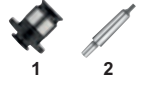
- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, MK volgens DIN 228-B, voor gebruik met tapinzetstukken
- FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, CM selon DIN 228-B, pour douilles porte-tarauds
- ES Aparato para roscar, con dispositivo 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	2	19	72	135	M3-M12	81.633/81.634	81.653/81.654	7	3
81.540.0220	2	31	83	171	M8-M20	81.636/81.637	81.656/81.657	10	4
81.540.0312	3	19	78	133	M4-M12	81.633/81.634	81.653/81.654	7	3
81.540.0320	3	31	83	171	M8-M20	81.636/81.637	81.656/81.657	10	4
81.540.0420	4	31	83	172	M8-M20	81.636/81.637	81.656/81.657	10	4

> **81.545 Phantom**

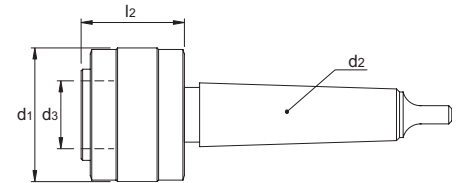
- NL Tapapparaat, met omkeerinrichting, met druk- en trekcompensatie, voor gebruik met tapinzetstukken
- FR Appareil à tarauder, dispositif d'inversion, à compensation de pression et de traction, pour douilles porte-tarauds
- ES Aparato para roscar, con dispositivo de inversión, con compensación de presión 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

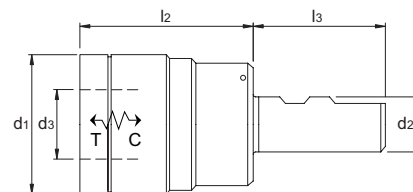


Ref.	d2	d3	d1	l2	Ø mm	1	2
81.570.0212	2	19	33	45	M3-M12	81.633/81.634	81.653/81.654
81.570.0220	2	31	50	61	M8-M20	81.636/81.637	81.656/81.657
81.570.0312	3	19	33	45	M3-M12	81.633/81.634	81.653/81.654
81.570.0320	3	31	50	61	M8-M20	81.636/81.637	81.656/81.657



> 81.602 Phantom

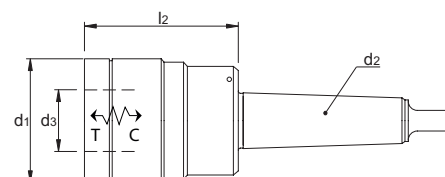
- NL Taphouder, met druk- en trekcompensatie, Weldon, voor gebruik met tapinzetstukken
 FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, Weldon, pour douilles porte-tarauds
 ES Portamachos de cambio rápido, con compensación de presión y de tracción, Weldon, para casquillos 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	SK40	19	38	41	72	M3-M12	81.633/81.634	81.653/81.654	9	9
81.602.4020	SK40	31	55	63	72	M8-M20	81.636/81.637	81.656/81.657	15	15
81.602.4033	SK40	48	79	97	72	M14-M33	81.639	81.659	24	24

> 81.610 Phantom

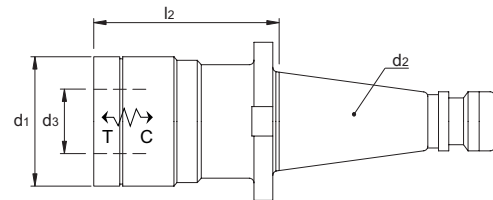
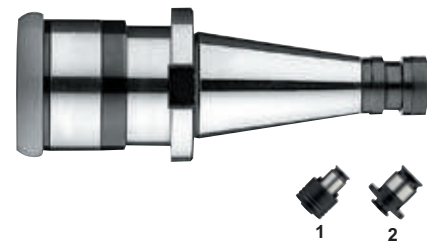
- NL Taphouder, met druk- en trekcompensatie, MK volgens DIN 228-B, voor gebruik met tapinzetstukken
 FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, CM selon DIN 228-B, pour douilles porte-tarauds
 ES Portamachos de cambio rápido, con compensación de presión y de tracción, 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	2	19	38	46	M3-M12	81.633/81.634	81.653/81.654	9	9
81.610.0312	3	19	38	46	M3-M12	81.633/81.634	81.653/81.654	9	9
81.610.0320	3	31	55	69	M8-M20	81.636/81.637	81.656/81.657	15	15
81.610.0420	4	31	55	70	M8-M20	81.636/81.637	81.656/81.657	15	15
81.610.0433	4	48	79	108	M14-M33	81.639	81.659	24	24
81.610.0533	5	48	79	103	M14-M33	81.639	81.659	24	24

> **81.613 Phantom**

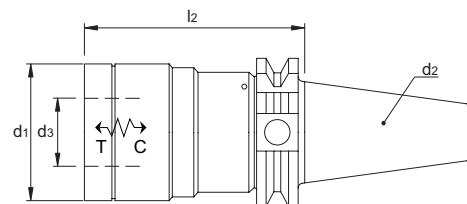
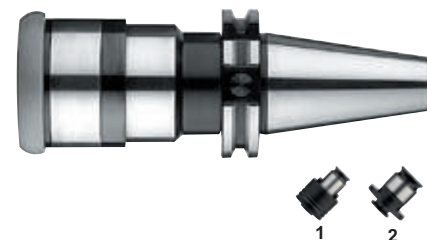
- NL Taphouder, met druk- en trekcompensatie, SK volgens DIN 2080, voor gebruik met tapinzetstukken
- FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, SA selon DIN 2080, pour douilles porte-tarauds
- ES Portamachos de cambio rápido, con compensación de presión y de tracción, 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-tarauds
- 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

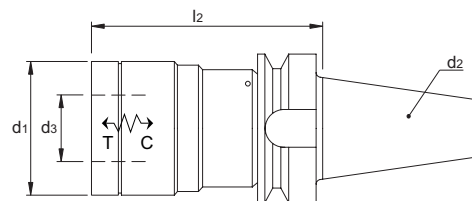
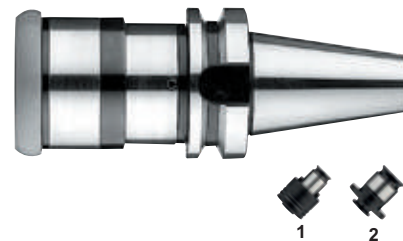


Ref.	d2	d3	d1	l2	Ø mm	1	2	T	C
81.614.4012	SK40	19	38	60	M3-M12	81.633/81.634	81.653/81.654	9	9
81.614.4020	SK40	31	55	100	M8-M20	81.636/81.637	81.656/81.657	15	15
81.614.4033	SK40	48	79	138	M14-M33	81.639	81.659	24	24
81.614.5012	SK50	19	38	62	M3-M12	81.633/81.634	81.653/81.654	9	9
81.614.5020	SK50	31	55	83	M8-M20	81.636/81.637	81.656/81.657	15	15
81.614.5033	SK50	48	79	133	M14-M33	81.639	81.659	24	24



> 81.616 Phantom

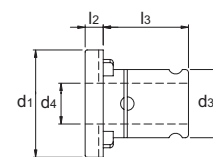
- NL Taphouder, met druk- en trekcompensatie, BT volgens MAS 403 BT, voor gebruik met tapinzetstukken
 FR Mandrin à tarauder porte-douilles, à compensation de pression et de traction, BT selon MAS 403 BT, pour douilles porte-tarauds
 ES Portamachos de cambio rápido, con compensación de presión y de tracción, 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	68	M3-M12	81.633/81.634	81.653/81.654	9	9
81.616.4020	BT40	31	55	93	M8-M20	81.636/81.637	81.656/81.657	15	15
81.616.4033	BT40	48	79	138	M14-M33	81.639	81.659	24	24
81.616.5012	BT50	19	38	80	M3-M12	81.633/81.634	81.653/81.654	9	9
81.616.5020	BT50	31	55	102	M8-M20	81.636/81.637	81.656/81.657	15	15
81.616.5033	BT50	48	79	135	M14-M33	81.639	81.659	24	24

> 81.625 Phantom

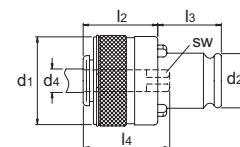
- NL Reduceerbus, voor het reduceren van tapinzetstukken
 FR Douille de réduction, pour réduction de douilles
 ES Casquillo de reducción, para la reducción de casquillos de roscado
 DE Reduzierhülse, zur Reduzierung- Gewindeeinsatz



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

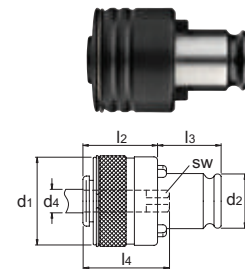
- NL Tapinzetstuk met ratel, DIN, type 13/0 Gr. 0
 FR Douille porte-tarauds avec limiteur de couple, DIN, type 13/0 Taille 0
 ES Casquillo de roscado con embrague de seguridad, DIN, tipo 13/0 Tam. 0
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN, Typ 13/0 Gr. 0



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
81.631.0501	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**

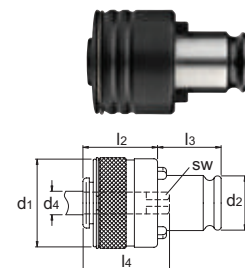
- NL Tapinzetstuk met ratel, DIN, type 19/1 Gr. 1
- FR Douille porte-tarauds avec limiteur de couple, DIN, type 19/1 Taille 1
- ES Casquillo de roscado con embrague de seguridad, DIN, tipo 19/1 Tam. 1
- DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN, Typ 19/1 Gr. 1



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

> **81.634 Phantom**

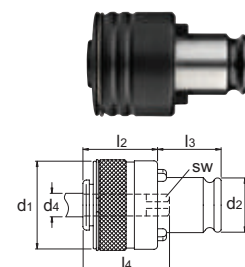
- NL Tapinzetstuk met ratel, ISO, type 19/1 Gr. 1
- FR Douille porte-tarauds avec limiteur de couple, ISO, type 19/1 Taille 1
- ES Casquillo de roscado con embrague de seguridad, ISO, tipo 19/1 Tam. 1
- DE Gewindebohrereinsatzstück mit Sicherheitskupplung, ISO, Typ 19/1 Gr. 1



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

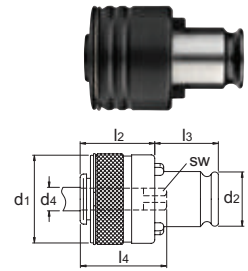


Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.636.0601	M6	DIN 371	6	4.9	50	31	34	35	34
81.636.0801	M8	DIN 371	8	6.2	50	31	34	35	34
81.636.0806	M8	DIN 376	6	4.9	50	31	34	35	34
81.636.1001	M10	DIN 371	10	8	50	31	34	35	34
81.636.1006	M10	DIN 376	7	5.5	50	31	34	35	34
81.636.1206	M12	DIN 376	9	7	50	31	34	35	34
81.636.1406	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

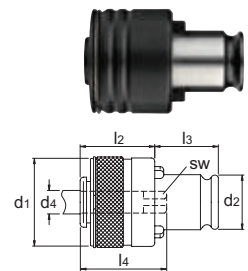
- NL Tapinzetstuk met ratel, ISO, type 31/2 Gr. 2
 FR Douille porte-tarands avec limiteur de couple, ISO, type 31/2
 Taille 2
 ES Casquillo de roscado con embrague de seguridad, ISO, tipo 31/2
 Tam. 2
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, ISO,
 Typ 31/2 Gr. 2



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

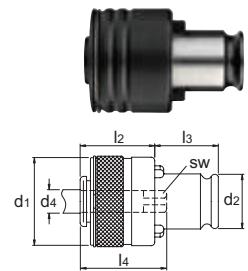
- NL Tapinzetstuk met ratel, DIN, type 48/3 Gr. 3
 FR Douille porte-tarands avec limiteur de couple, DIN, type 48/3
 Taille 3
 ES Casquillo de roscado con embrague de seguridad, DIN, tipo 48/3
 Tam. 3
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN,
 Typ 48/3 Gr. 3



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

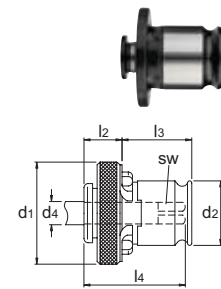
- NL Tapinzetstuk met ratel, DIN, type 60/4 Gr. 4
 FR Douille porte-tarands avec limiteur de couple, DIN, type 60/4
 Taille 4
 ES Casquillo de roscado con embrague de seguridad, DIN, tipo 60/4
 Tam. 4
 DE Gewindebohrereinsatzstück mit Sicherheitskupplung, DIN,
 Typ 60/4 Gr. 4



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**

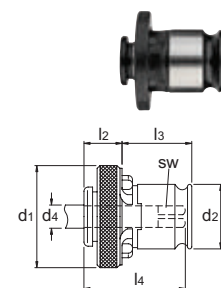
- NL Tapinzetstuk zonder ratel, DIN, type 13/10 Gr. 0
- FR Douille porte-tarauds sans limiteur de couple, DIN, type 13/10
Taille 0
- ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 13/10
Tam. 0
- DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
Typ 13/10 Gr. 0



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**

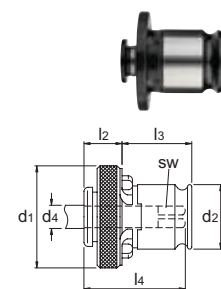
- NL Tapinzetstuk zonder ratel, DIN, type 19/11 Gr. 1
- FR Douille porte-tarauds sans limiteur de couple, DIN, type 19/11
Taille 1
- ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 19/11
Tam. 1
- DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
Typ 19/11 Gr. 1



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-tarauds 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

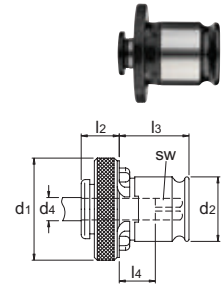


Ref.	M	d4	sw	d1	d2	l2	l3	l4
81.654.0300	M3	3.15	2.5	30	19	7	21.5	10
81.654.0400	M4	4	3.15	30	19	7	21.5	10
81.654.0500	M5	5	4	30	19	7	21.5	10
81.654.0600	M6	6.3	5	30	19	7	21.5	10



> 81.655 Phantom

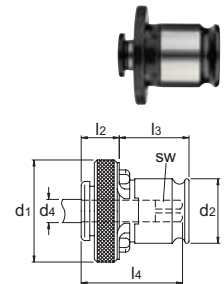
- NL Tapinzetstuk zonder ratel, DIN, type 26/12 Gr. 1
 FR Douille porte-tarands sans limiteur de couple, DIN, type 26/12
 Taille 1
 ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 26/12
 Tam. 1
 DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
 Typ 26/12 Gr. 1



Ref.	M	DIN	d4	sw	d1	d2	l2	l3	l4
81.655.0801	M8	DIN 371	8	6.3	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

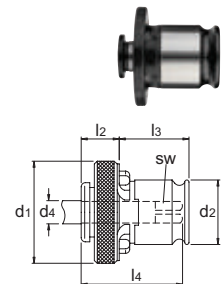
- NL Tapinzetstuk zonder ratel, DIN, type 31/2 Gr. 2
 FR Douille porte-tarands sans limiteur de couple, DIN, type 31/2
 Taille 2
 ES Casquillo de roscado sin embrague de seguridad, DIN, tipo 31/2
 Tam. 2
 DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, DIN,
 Typ 31/2 Gr. 2



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

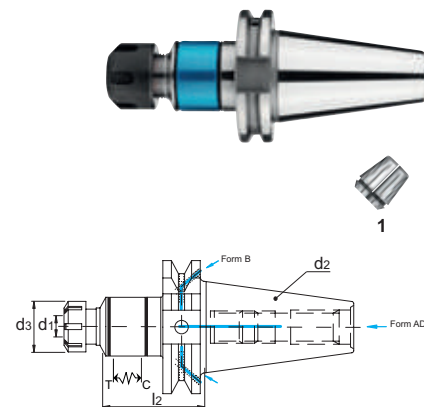
- NL Tapinzetstuk zonder ratel, ISO, type 31/12 Gr. 2
 FR Douille porte-tarands sans limiteur de couple, ISO, type 31/12
 Taille 2
 ES Casquillo de roscado sin embrague de seguridad, ISO, tipo 31/12
 Tam. 2
 DE Gewindebohrereinsatzstück ohne Sicherheitskupplung, ISO,
 Typ 31/12 Gr. 2



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**

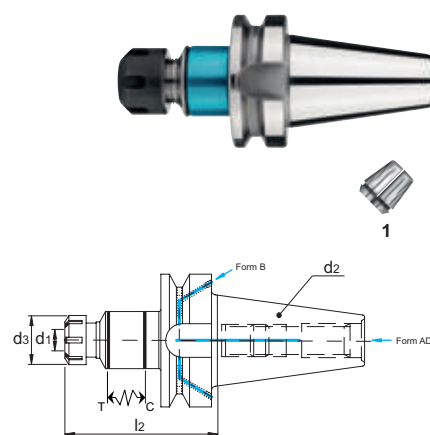
- NL **Synchro Taphouder SK volgens DIN 69871-AD/B, voor ER spantangen (met vierkant)**
- FR **Mandrin à tarauder Synchro SA selon DIN 69871-AD/B, pour utilisation avec pinces ER (avec carré d'entraînement)**
- ES **Portamachos Synchro SK según DIN 69871-AD/B, para uso con ER pinzas (con cuadrado interior)**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

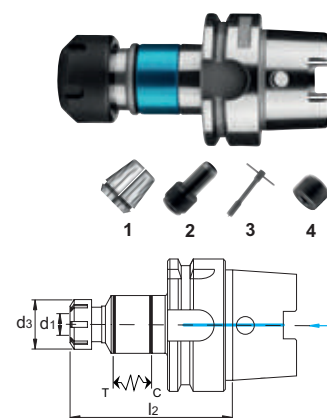
- NL **Synchro Taphouder BT volgens MAS 403 BT, voor ER spantangen (met vierkant)**
- FR **Mandrin à tarauder Synchro BT selon MAS 403 BT, pour utilisation avec pinces ER (avec carré d'entraînement)**
- ES **Portamachos Synchro BT según MAS 403 BT, para uso con ER pinzas (con cuadrado interior)**
- DE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

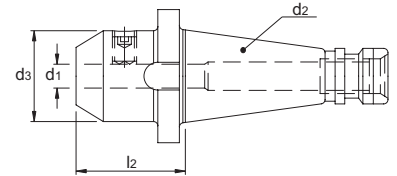


Ref.	d2	d1	Ø mm	l2	d3	T	C	1	2	3	4
81.687.0631	HSK63A	ER16	1-10	89	32	0.5	0.5	82.880	84.790.1800	84.791.1800	84.789.1800
81.687.0632	HSK63A	ER25	3,5-16	94	42	0.5	0.5	82.885	84.790.1800	84.791.1800	84.789.1800
81.687.1002	HSK100A	ER25	3,5-16	101	42	0.5	0.5	82.885	84.790.1800	84.791.1800	84.789.1800



> 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

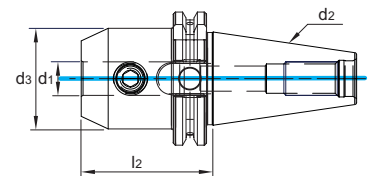


Ref.	d2	d1	l2	d3	M	1
82.153.3006	SK30	6	40	25	M12	82.159.0600
82.153.3008	SK30	8	40	28	M12	82.159.0800
82.153.3010	SK30	10	40	35	M12	82.159.1000
82.153.3012	SK30	12	40	42	M12	82.159.1200
82.153.3016	SK30	16	50	48	M12	82.159.1400
82.153.3020	SK30	20	63	52	M12	82.159.1600
82.153.4006	SK40	6	50	25	M16	82.159.0600
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	82.159.2001

> 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

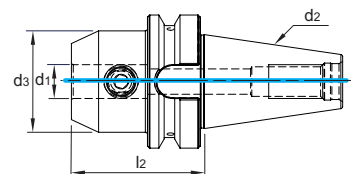


Ref.	d2	d1	l2	d3	M	1
82.154.4061	SK40	6	50	25	M16	82.159.0600
82.154.4062	SK40	6	100	25	M16	82.159.0600
82.154.4066	SK40	6	160	25	M16	82.159.0600
82.154.4081	SK40	8	50	28	M16	82.159.0800
82.154.4082	SK40	8	100	28	M16	82.159.0800
82.154.4086	SK40	8	160	28	M16	82.159.0800
82.154.4101	SK40	10	50	35	M16	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
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
82.154.4402	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
82.154.5186	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
82.154.5404	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**



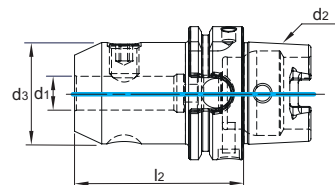
DIN 6359 **AD** **DIN 1835-B** **MAS-BT** **AT3** **0,005** **G6,3 15.000 RPM**

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 15.000 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 Phantom

Ref.	d2	d1	l2	d3	M	1	2	3	4
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

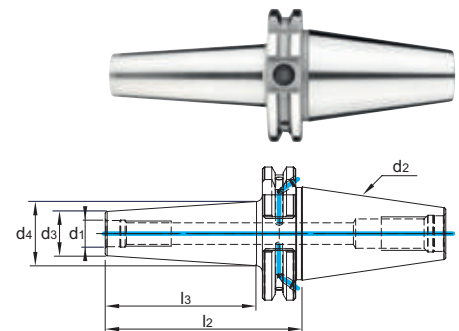


DIN
6359

Ref.	Type	M	Ref.	Type	M
82.159.0600	6	M6	82.159.1600	20	M16
82.159.0800	8	M8	82.159.1800	25	M18x2
82.159.1000	10	M10	82.159.2000	32	M20x2x20
82.159.1200	12+14	M12	82.159.2001	40	M20x2x25
82.159.1400	16+18	M14			

> 82.214 Phantom

NL Opschroef opname, SK volgens DIN 69871
 FR Mandrins pour fraises à queue fileté, SA selon DIN 69871
 ES Portafresas con mango roscado, SK según DIN 69871
 DE Einschraubfräseraufnahme, SK nach DIN 69871



AD/B SK AT3 0,005 G2.5 20.000 RPM

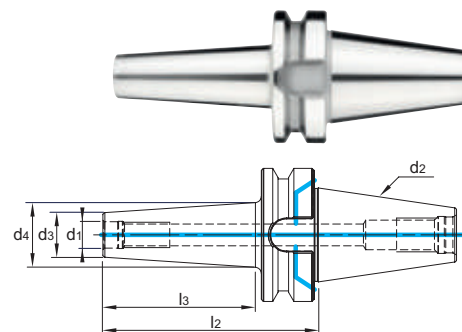
Ref.	d2	d1	l2	l3	d3	d4	M
82.214.4061	SK40	M06	44	25	10	13	M16
82.214.4062	SK40	M06	69	50	10	20	M16
82.214.4063	SK40	M06	94	75	10	23	M16
82.214.4081	SK40	M08	44	25	13	15	M16
82.214.4082	SK40	M08	69	50	13	23	M16
82.214.4083	SK40	M08	94	75	13	23	M16
82.214.4084	SK40	M08	119	100	13	25	M16
82.214.4101	SK40	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 Phantom**

Ref.	d2	d1	l2	l3	d3	d4	M
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, SK volgens DIN 69871
- FR Mandrins pour fraises à queue fileté, SA selon DIN 69871
- ES Portafresas con mango roscado, SK según DIN 69871
- DE Einschraubfräseraufnahme, SK nach DIN 69871



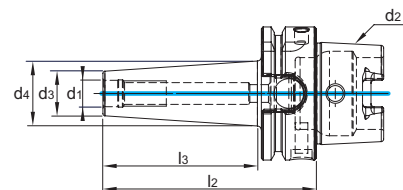
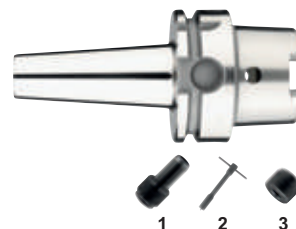
AD/B  AT3  0,005  G2,5
20,000 RPM

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
82.216.4125	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

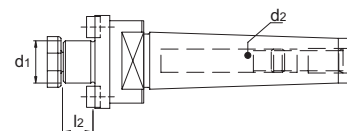
NL Opschroef opname, HSK-A volgens DIN 69893
 FR Mandrins pour fraises à queue filetée, HSK-A selon DIN 69893
 ES Portafresas con mango roscado, HSK-A según DIN 69893
 DE Einschraubfräseraufnahme, HSK-A nach DIN 69893



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

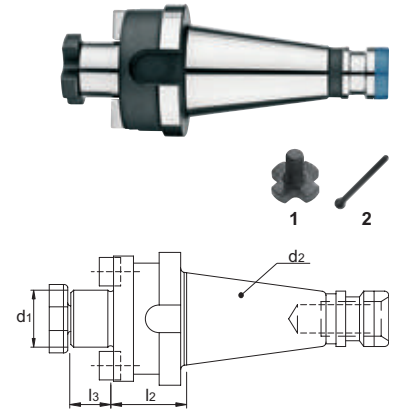
NL Opsteekfreeshouder voor frezen met dwarsspiebaan, MK volgens DIN 228-A
 FR Mandrin porte-fraises pour fraises avec tenons, CM selon DIN 228-A
 ES Portafresa para fresas con chavetas frontales, CM según DIN 228-A
 DE Aufsteckfräserdorne für Fräser mit Quernut, MK nach DIN 228-A



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

> **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 **Portafresa para fresas con chavetas frontales, SK según DIN 2080**
- DE **Aufsteckfräserdorne für Fräser mit Quernut, SK nach DIN 2080**

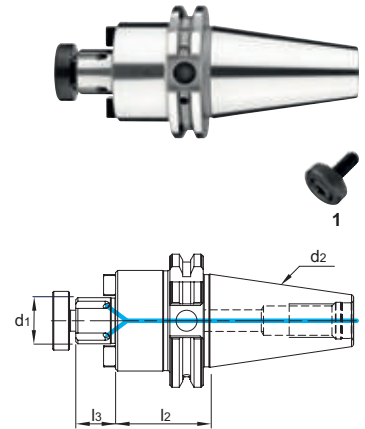


DIN 6537 **SK** **AT3** **0,005**

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

> **82.264 Phantom**

- NL **Opsteekfreeshouder voor frezen met dwarsspiebaan, SK volgens DIN 69871**
- FR **Mandrin porte-fraises pour fraises avec tenons, SA selon DIN 69871**
- ES **Portafresa para fresas con chavetas frontales, SK según DIN 69871**
- DE **Aufsteckfräserdorne für Fräser mit Quernut, SK nach DIN 69871**



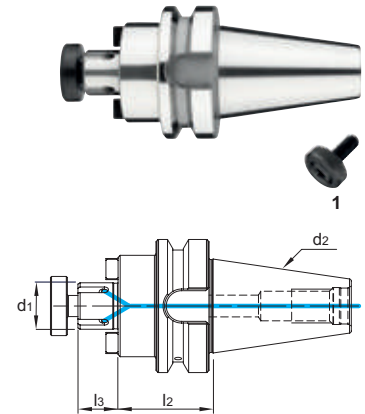
DIN 6537 **AD/B** **SK** **AT3** **0,005** **G6.3** **15.000 RPM**

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



> 82.266 Phantom

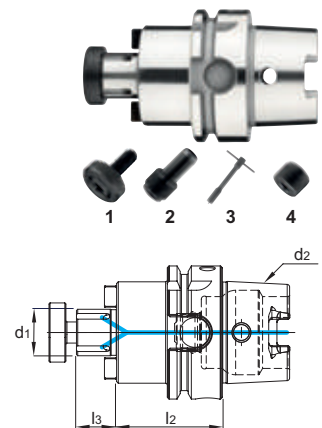
- NL Opsteekfreeshouder voor frezen met dwarsspiebaan, BT volgens MAS 403-BT AD/B
 FR Mandrin porte-fraises pour fraises avec tenons, BT selon MAS 403-BT AD/B
 ES Portafresa para fresas con chavetas frontales, BT según MAS 403-BT AD/B
 DE Aufsteckfräserdorne für Fräser mit Quernut, BT nach MAS 403-BT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



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
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

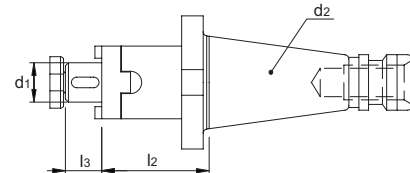
- NL Opsteekfreeshouder voor frezen met dwarsspiebaan, HSK-A volgens DIN 69893
 FR Mandrin porte-fraises pour fraises avec tenons, HSK-A selon DIN 69893
 ES Portafresa para fresas con chavetas frontales, HSK-A según DIN 69893
 DE Aufsteckfräserdorne für Fräser mit Quernut, HSK-A nach DIN 69893



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

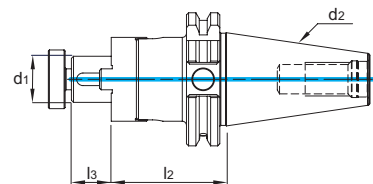
- NL Combi-Opsteekfreeshouder voor frezen met langs- en dwarsspiebaan, SK volgens DIN 2080
- FR Mandrin porte-fraises combinés pour fraises avec rainure de clavette et tenons, SA selon DIN 2080
- ES Portafresa combinado para fresas con ranura longitudinal y transversal, SK según DIN 2080
- DE Kombi-Aufsteckfräsdorn 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
82.323.4027	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

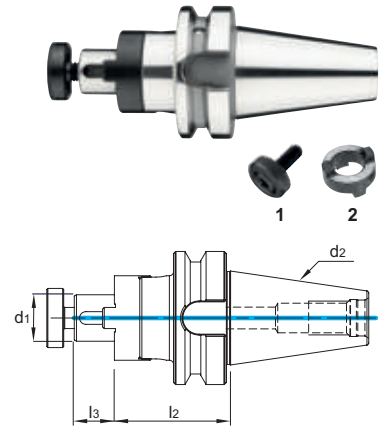


Ref.	d2	d1	l2	l3	M	1	2
82.324.4161	SK40	16	55	17	M16	82.452.0800	82.460.0800
82.324.4162	SK40	16	100	17	M16	82.452.0800	82.460.0800
82.324.4166	SK40	16	160	17	M16	82.452.0800	82.460.0800
82.324.4221	SK40	22	55	19	M16	82.452.1000	82.460.1000
82.324.4222	SK40	22	100	19	M16	82.452.1000	82.460.1000
82.324.4226	SK40	22	160	19	M16	82.452.1000	82.460.1000
82.324.4271	SK40	27	55	21	M16	82.452.1200	82.460.1200
82.324.4272	SK40	27	100	21	M16	82.452.1200	82.460.1200
82.324.4276	SK40	27	160	21	M16	82.452.1200	82.460.1200
82.324.4321	SK40	32	60	24	M16	82.452.1600	82.460.1600
82.324.4322	SK40	32	100	24	M16	82.452.1600	82.460.1600
82.324.4326	SK40	32	160	24	M16	82.452.1600	82.460.1600
82.324.4401	SK40	40	60	27	M16	82.452.2000	82.460.2000
82.324.4402	SK40	40	100	27	M16	82.452.2000	82.460.2000
82.324.4406	SK40	40	160	27	M16	82.452.2000	82.460.2000
82.324.5161	SK50	16	55	17	M24	82.452.0800	82.460.0800
82.324.5162	SK50	16	100	17	M24	82.452.0800	82.460.0800
82.324.5166	SK50	16	160	17	M24	82.452.0800	82.460.0800
82.324.5221	SK50	22	55	19	M24	82.452.1000	82.460.1000
82.324.5222	SK50	22	100	19	M24	82.452.1000	82.460.1000
82.324.5226	SK50	22	160	19	M24	82.452.1000	82.460.1000
82.324.5271	SK50	27	55	21	M24	82.452.1200	82.460.1200
82.324.5272	SK50	27	100	21	M24	82.452.1200	82.460.1200
82.324.5276	SK50	27	160	21	M24	82.452.1200	82.460.1200
82.324.5321	SK50	32	55	24	M24	82.452.1600	82.460.1600
82.324.5322	SK50	32	100	24	M24	82.452.1600	82.460.1600
82.324.5326	SK50	32	160	24	M24	82.452.1600	82.460.1600
82.324.5401	SK50	40	55	27	M24	82.452.2000	82.460.2000
82.324.5402	SK50	40	100	27	M24	82.452.2000	82.460.2000
82.324.5406	SK50	40	160	27	M24	82.452.2000	82.460.2000



> 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**

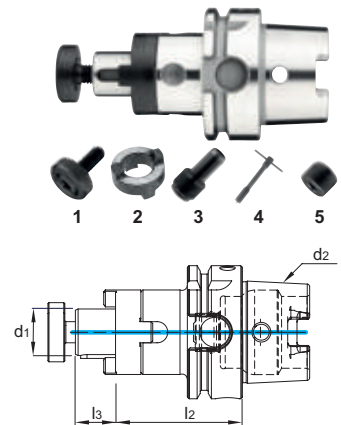


DIN 6358	AD	MAS-BT	AT3	0,005	G6,3 15.000 RPM
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Ref.	d2	d1	l2	l3	M	1	2
82.326.4161	BT40	16	55	17	M16	82.452.0800	82.460.0800
82.326.4162	BT40	16	100	17	M16	82.452.0800	82.460.0800
82.326.4166	BT40	16	160	17	M16	82.452.0800	82.460.0800
82.326.4221	BT40	22	55	19	M16	82.452.1000	82.460.1000
82.326.4222	BT40	22	100	19	M16	82.452.1000	82.460.1000
82.326.4226	BT40	22	160	19	M16	82.452.1000	82.460.1000
82.326.4271	BT40	27	55	21	M16	82.452.1200	82.460.1200
82.326.4272	BT40	27	100	21	M16	82.452.1200	82.460.1200
82.326.4276	BT40	27	160	21	M16	82.452.1200	82.460.1200
82.326.4321	BT40	32	60	24	M16	82.452.1600	82.460.1600
82.326.4322	BT40	32	100	24	M16	82.452.1600	82.460.1600
82.326.4326	BT40	32	160	24	M16	82.452.1600	82.460.1600
82.326.4401	BT40	40	60	27	M16	82.452.2000	82.460.2000
82.326.5161	BT50	16	70	17	M24	82.452.0800	82.460.0800
82.326.5162	BT50	16	100	17	M24	82.452.0800	82.460.0800
82.326.5166	BT50	16	160	17	M24	82.452.0800	82.460.0800
82.326.5221	BT50	22	70	19	M24	82.452.1000	82.460.1000
82.326.5222	BT50	22	100	19	M24	82.452.1000	82.460.1000
82.326.5226	BT50	22	160	19	M24	82.452.1000	82.460.1000
82.326.5271	BT50	27	70	21	M24	82.452.1200	82.460.1200
82.326.5272	BT50	27	100	21	M24	82.452.1200	82.460.1200
82.326.5276	BT50	27	160	21	M24	82.452.1200	82.460.1200
82.326.5321	BT50	32	70	24	M24	82.452.1600	82.460.1600
82.326.5322	BT50	32	100	24	M24	82.452.1600	82.460.1600
82.326.5326	BT50	32	160	24	M24	82.452.1600	82.460.1600
82.326.5401	BT50	40	70	27	M24	82.452.2000	82.460.2000
82.326.5402	BT50	40	100	27	M24	82.452.2000	82.460.2000
82.326.5406	BT50	40	160	27	M24	82.452.2000	82.460.2000

> 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**

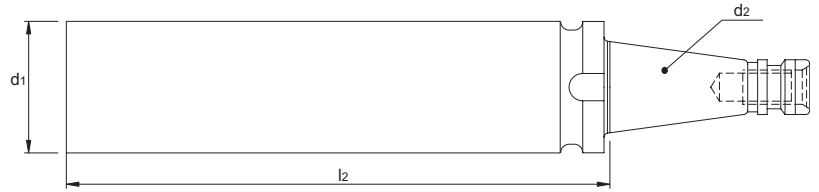


DIN 6358	HSK-A	AT3	0,005	G6,3 15.000 RPM
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Ref.	d2	d1	l2	l3	M	1	2	3	4	5
82.326.6161	HSK63A	16	60	17	M18X1	82.452.0800	82.460.0800	84.790.1800	84.791.1800	84.789.1800
82.326.6162	HSK63A	16	100	17	M18X1	82.452.0800	82.460.0800	84.790.1800	84.791.1800	84.789.1800
82.326.6166	HSK63A	16	160	17	M18X1	82.452.0800	82.460.0800	84.790.1800	84.791.1800	84.789.1800
82.326.6221	HSK63A	22	60	19	M18X1	82.452.1000	82.460.1000	84.790.1800	84.791.1800	84.789.1800
82.326.6222	HSK63A	22	100	19	M18X1	82.452.1000	82.460.1000	84.790.1800	84.791.1800	84.789.1800
82.326.6226	HSK63A	22	160	19	M18X1	82.452.1000	82.460.1000	84.790.1800	84.791.1800	84.789.1800
82.326.6271	HSK63A	27	60	21	M18X1	82.452.1200	82.460.1200	84.790.1800	84.791.1800	84.789.1800
82.326.6272	HSK63A	27	100	21	M18X1	82.452.1200	82.460.1200	84.790.1800	84.791.1800	84.789.1800
82.326.6276	HSK63A	27	160	21	M18X1	82.452.1200	82.460.1200	84.790.1800	84.791.1800	84.789.1800
82.326.6321	HSK63A	32	65	24	M18X1	82.452.1600	82.460.1600	84.790.1800	84.791.1800	84.789.1800
82.326.6401	HSK63A	40	70	27	M18X1	82.452.2000	82.460.2000	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 **Piezas brutas para arboles de taladrar, SK según DIN 2080**
 DE **Werkzeughalter-Rohling, SK nach DIN 2080**

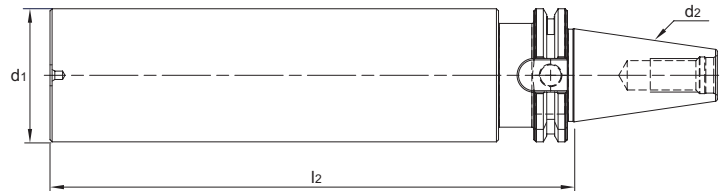


Ref.	d2	d1	l2	M
82.423.4063	SK40	63	250	M16

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 **Piezas brutas para arboles de taladrar, SK según DIN 69871**
 DE **Werkzeughalter-Rohling, SK nach DIN 69871**

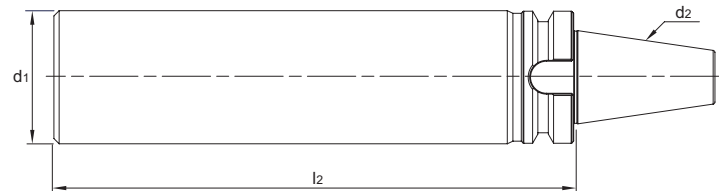


Ref.	d2	d1	l2	M
82.424.4063	SK40	63	250	M16

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 **Piezas brutas para arboles de taladrar, 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

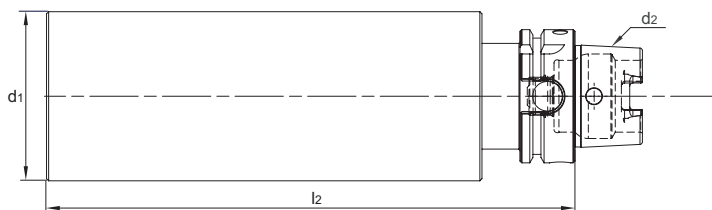
Ref.	d2	d1	l2	M
82.426.5080	BT50	97	315	M24





> 82.427 Phantom

NL Halfbewerkte gereedschapshouder, HSK-A volgens DIN 69893
 FR Mandrin porte-outils non fini, HSK-A selon DIN 69893
 ES Piezas brutas para arboles de taladrar, HSK-A según DIN 69893
 DE Werkzeughalter-Rohling, HSK-A nach DIN 69893



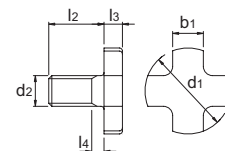
HSK-A
 AT3

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	r1	r2	Type
82.450.0800	M8	3	8	20	6	16	1.6	2	16
82.450.1000	M10	3.6	10	28	7	18	2	3	22
82.450.1200	M12	4.5	12	35	8	22	2.5	3	27

Ref.	M	l4	b1	d1	l3	l2	r1	r2	Type
82.450.1600	M16	5.5	16	42	9	26	3	3	32
82.450.2000	M20	6	20	52	10	30	3	4	40

> 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 Spanschlüssel, für Aufsteckhalter



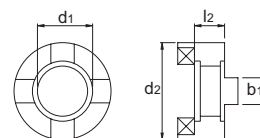
DIN
 6368

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



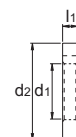
DIN
 6366

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 **Fräsdoornring**

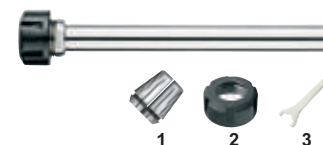


DIN
2084-B

Ref.	d1	d2	l1	Ref.	d1	d2	l1
82.480.1601	16	25	1	82.480.3201	32	45	1
82.480.1602	16	25	2	82.480.3202	32	45	2
82.480.1603	16	25	3	82.480.3203	32	45	3
82.480.1606	16	25	6	82.480.3206	32	45	6
82.480.1610	16	25	10	82.480.3210	32	45	10
82.480.1620	16	25	20	82.480.3220	32	45	20
82.480.1630	16	25	30	82.480.3230	32	45	30
82.480.2201	22	33	1	82.480.4001	40	54	1
82.480.2202	22	33	2	82.480.4002	40	54	2
82.480.2203	22	33	3	82.480.4003	40	54	3
82.480.2206	22	33	6	82.480.4006	40	54	6
82.480.2210	22	33	10	82.480.4010	40	54	10
82.480.2220	22	33	20	82.480.4020	40	54	20
82.480.2230	22	33	30	82.480.4030	40	54	30
82.480.2701	27	39	1	82.480.5001	50	67	1
82.480.2702	27	39	2	82.480.5002	50	67	2
82.480.2703	27	39	3	82.480.5003	50	67	3
82.480.2706	27	39	6	82.480.5006	50	67	6
82.480.2710	27	39	10	82.480.5010	50	67	10
82.480.2720	27	39	20	82.480.5020	50	67	20
82.480.2730	27	39	30	82.480.5030	50	67	30

> **82.510 Phantom**

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

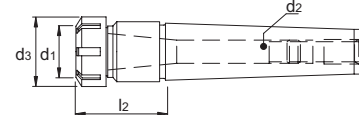


DIN
6499-B

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	150	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

> **82.511 INTERNATIONAL TOOLS**

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



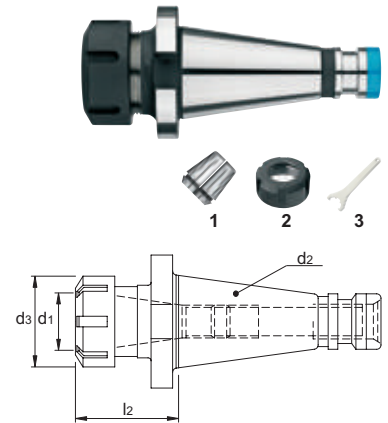
DIN
228-A

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

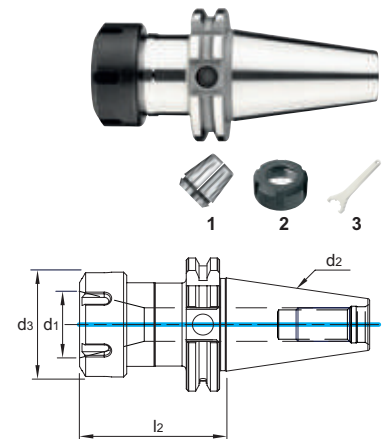
NL ER Spantanghouder, SK volgens DIN 2080
 FR Mandrin porte-pinces ER, SA selon DIN 2080
 ES Portapinzas ER, SK según DIN 2080
 DE ER-Spannzangenfutter, SK nach DIN 2080



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

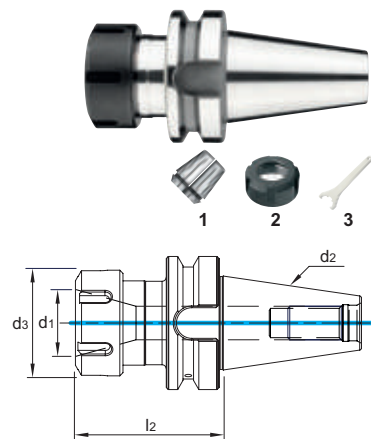
NL ER Spantanghouder, SK volgens DIN 69871
 FR Mandrin porte-pinces ER, SA selon DIN 69871
 ES Portapinzas ER, SK según DIN 69871
 DE ER-Spannzangenfutter, SK nach DIN 69871



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**

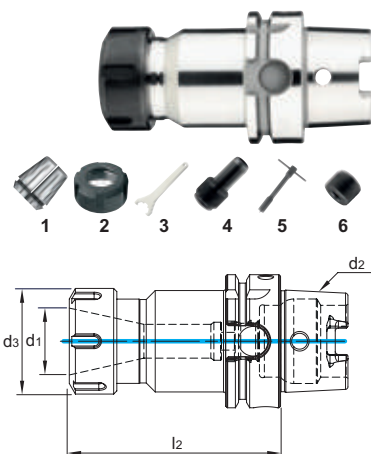
NL **ER Spantanghouder, BT volgens MAS 403 BT**
 FR **Mandrin porte-pinces ER, BT selon MAS 403 BT**
 ES **Portapinzas ER, BT según MAS 403 BT**
 DE **ER-Spannzangenfutter, BT nach MAS 403 BT**



Ref.	d2	Type	Ø mm	l2	d3	M	1	2	3
82.516.4161	BT40	ER16	1-10	70	32	M16	82816	82.960.1600	82.990.1600
82.516.4162	BT40	ER16	1-10	100	32	M16	82816	82.960.1600	82.990.1600
82.516.4166	BT40	ER16	1-10	160	32	M16	82816	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	82816	82.960.1600	82.990.1600
82.516.5166	BT50	ER16	1-10	160	32	M24	82816	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
82.516.5256	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**

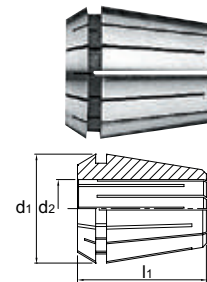


Ref.	d2	Type	Ø mm	l2	d3	M	1	2	3	4	5	6
82.517.6252	HSK63A	ER25	1-16	100	42	M18X1	82.825	82.960.2500	82.990.2500	84.790.1800	84.791.1800	84.789.1800
82.517.6256	HSK63A	ER25	1-16	160	42	M18X1	82.825	82.960.2500	82.990.2500	84.790.1800	84.791.1800	84.789.1800
82.517.6322	HSK63A	ER32	2-20	100	50	M18X1	82.832	82.960.3200	82.990.3200	84.790.1800	84.791.1800	84.789.1800
82.517.6326	HSK63A	ER32	2-20	160	50	M18X1	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	M18X1	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	M18X1	82.840	82.960.4000	82.990.4000	84.790.1800	84.791.1800	84.789.1800



> 82.811 Phantom

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



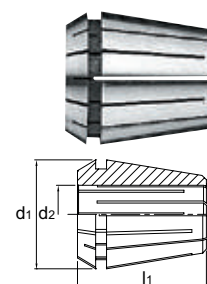
DIN
ER-11 6499-B

Ref.	d2	Ø mm	d1	l1
82.811.0100	1	0,5-1	11.6	18
82.811.0150	1.5	1-1,5	11.6	18
82.811.0200	2	1,5-2	11.6	18
82.811.0250	2.5	2-2,5	11.6	18
82.811.0300	3	2,5-3	11.6	18
82.811.0350	3.5	3-3,5	11.6	18
82.811.0400	4	3,5-4	11.6	18

Ref.	d2	Ø mm	d1	l1
82.811.0450	4.5	4-4,5	11.6	18
82.811.0500	5	4,5-5	11.6	18
82.811.0550	5.5	5-5,5	11.6	18
82.811.0600	6	5,5-6	11.6	18
82.811.0650	6.5	6-6,5	11.6	18
82.811.0700	7	6,5-7	11.6	18

> 82.816 Phantom

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



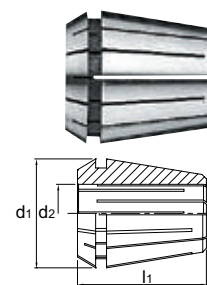
DIN
ER-16 6499-B

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	1-2	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, standaard, standaard, 10 µm, 10 µm, DIN 6499-B
 FR Pince ER 20, standard, standard, 10 µm, 10 µm, DIN 6499-B
 ES Pinza ER 20, estándar, estándar, 10 µm, 10 µm, DIN 6499-B
 DE Spannzange ER 20, standard, standard, 10 µm, 10 µm, DIN 6499-B



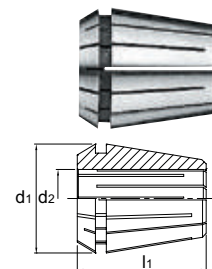
DIN
ER-20 6499-B

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



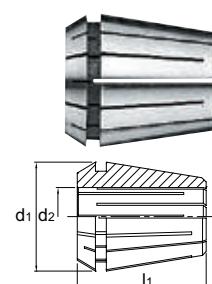
 **DIN 6499-B**
ER-25

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	1-2	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, standaard, 10 µm, DIN 6499-B
 FR Pince ER 32, standard, 10 µm, DIN 6499-B
 ES Pinza ER 32, estándar, 10 µm, DIN 6499-B
 DE Spannzange ER 32, standard, 10 µm, DIN 6499-B



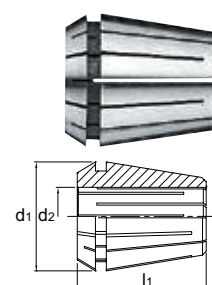
 **DIN 6499-B**
ER-32

Ref.	d2	Ø mm	d1	l1
82.832.0200	2	1-2	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, standaard, 10 µm, DIN 6499-B
 FR Pince ER 40, standard, 10 µm, DIN 6499-B
 ES Pinza ER 40, estándar, 10 µm, DIN 6499-B
 DE Spannzange ER 40, standard, 10 µm, DIN 6499-B



 **DIN 6499-B**
ER-40

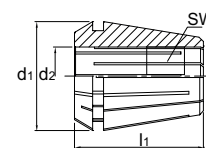
Ref.	d2	Ø mm	d1	l1
82.840.0300	3	2-3	41	46
82.840.0400	4	3-4	41	46
82.840.0500	5	4-5	41	46
82.840.0600	6	5-6	41	46
82.840.0700	7	6-7	41	46
82.840.0800	8	7-8	41	46
82.840.0900	9	8-9	41	46
82.840.1000	10	9-10	41	46
82.840.1100	11	10-11	41	46
82.840.1200	12	11-12	41	46
82.840.1300	13	12-13	41	46
82.840.1400	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 voor tappen
FR Pince ER 16G pour tarauds
ES Pinza ER 16G para machos
DE Spannzange ER 16G für Maschinengewindebohrer



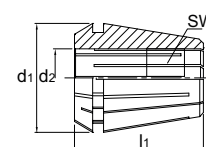
ER-16

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



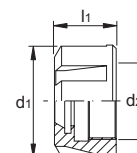
ER-25

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

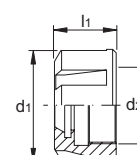


Ref.	Type	d1	M	l1
82.960.1600	ER16	32	M22x1,5	17.5
82.960.2500	ER25	42	M32x1,5	20

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 pinces, ER, DIN 6499**
 ES **Junta para pinzas, ER, DIN 6499**
 DE **Dichtungsringe für Spannanzgen, 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
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

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
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 pinces, ER, DIN 6499**
 ES **Llave para Tuerca para portapinzas, ER, DIN 6499**
 DE **Schlüssel für Spannanzgenmuttern, ER, DIN 6499**



Ref.	Type
82.990.1600	ER16
82.990.2500	ER25

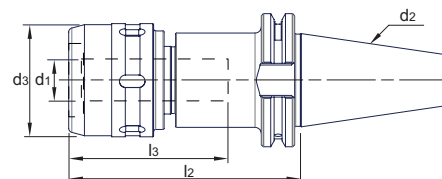
Ref.	Type
82.990.3200	ER32
82.990.4000	ER40





> 83.624 Phantom

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

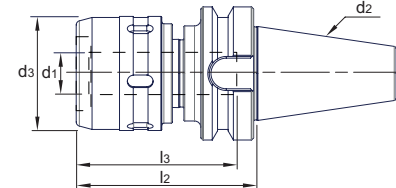


AD SK AT3 0,005 G6,3
15.000 RPM

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 Mandrins à grande force de serrage, BT selon MAS 403 BT
 ES Portaherramientas de alto apriete, BT según MAS 403 BT
 DE Kraftspannfutter, BT nach MAS 403 BT

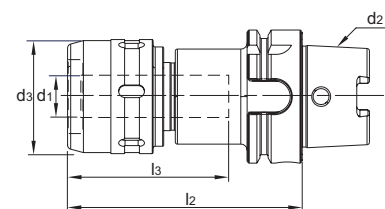


AD MAS-BT AT3 0,005 G6,3
15.000 RPM

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 Mandrins à grande force de serrage, HSK-A selon DIN 69893
 ES Portaherramientas de alto apriete, HSK-A según DIN 69893
 DE Kraftspannfutter, HSK-A nach DIN 69893

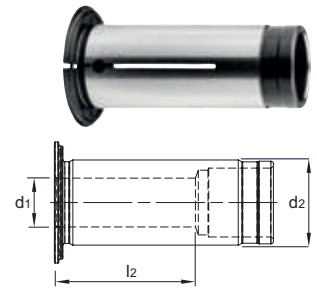


AD HSK-A AT3 0,005 G6,3
20.000 RPM

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

> **83.691 Phantom**

NL **Reduceerhuls, voor, Krachtspan opname**
 FR **Douille de réduction, pour, Mandrins à grande force de serrage**
 ES **Casquillo de reducción, para, Portaherramientas de alto apriete**
 DE **Reduzierhülsen, für, Kraftspannfutter**

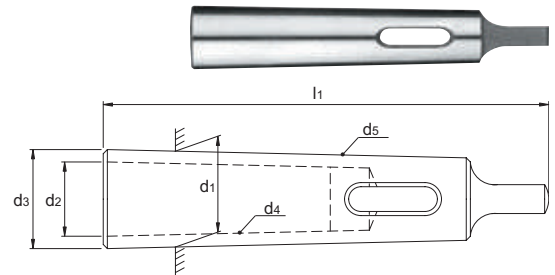


Ref.	d2	d1	l2
83.691.2061	20	6	25
83.691.2081	20	8	30
83.691.2101	20	10	33
83.691.2121	20	12	34
83.691.2141	20	14	34
83.691.2161	20	16	40
83.691.3061	32	6	25
83.691.3081	32	8	25

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

> **84.100 INTERNATIONAL TOOLS**

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



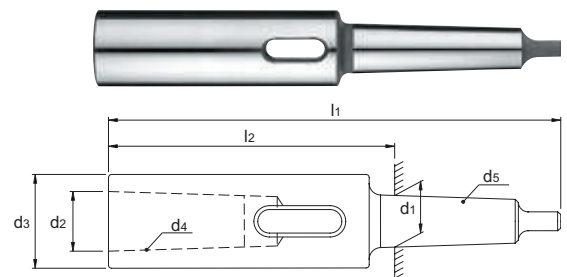
DIN
2185

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

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

> **84.110 INTERNATIONAL TOOLS**

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



DIN
2187

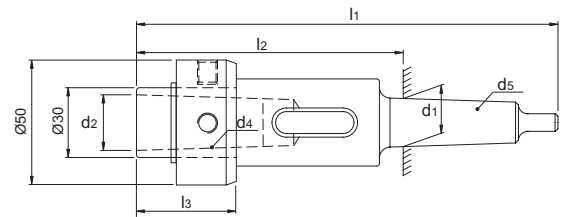
Ref.	d5	d4	d1	d2	d3	l1	l2
84.110.0101	1	1	12.065	12.065	20	145	83
84.110.0102	1	2	12.065	17.78	30	160	91
84.110.0103	1	3	12.065	23.825	36	183	121
84.110.0201	2	1	17.78	12.065	20	160	85
84.110.0202	2	2	17.78	17.78	30	175	100
84.110.0203	2	3	17.78	23.825	36	196	112
84.110.0204	2	4	17.78	31.267	48	221	146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

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



> 84.120 INTERNATIONAL TOOLS

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

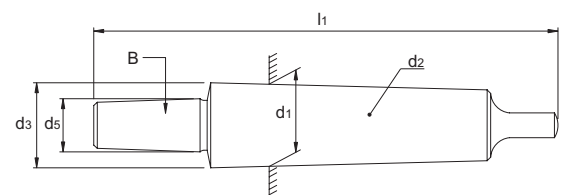


Ref.	d5	d4	d1	d2	l1	l2	l3
84.120.0202	2	2	17.78	17.78	175	100	38.5
84.120.0203	2	3	17.78	23.825	196	121	47.5
84.120.0302	3	2	23.825	17.78	194	100	38.5

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

> 84.170 INTERNATIONAL TOOLS

NL Boorhouderstift, MK en B-opname DIN 238
 FR Arbre de mandrin porte-forets, CM et cône B selon DIN 238
 ES Espiga para portabrocas, CM y con sujeción B DIN 238
 DE Bohrfutterkegel, MK und B-Aufnahme DIN 238



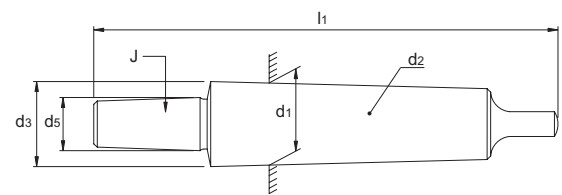
DIN
238

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

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

> 84.171 INTERNATIONAL TOOLS

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

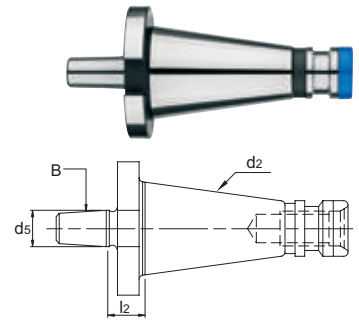


Ref.	d2	J	l1	d1	d5	d3
84.171.0101	1	J1	83.8	12.065	8.469	12.22
84.171.0102	1	J2	90.5	12.065	12.386	12.22
84.171.0103	1	J3	100.5	12.065	18.951	12.22
84.171.0201	2	J1	102.5	17.78	8.469	18
84.171.0202	2	J2	106	17.78	12.386	18
84.171.0203	2	J3	112.5	17.78	18.951	18
84.171.0206	2	J6	107	17.78	15.852	18

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



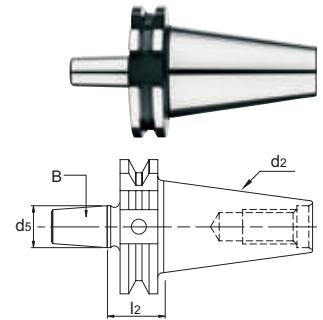
DIN 238 SK HRC 60^{±2} AT3 \downarrow 0,005

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



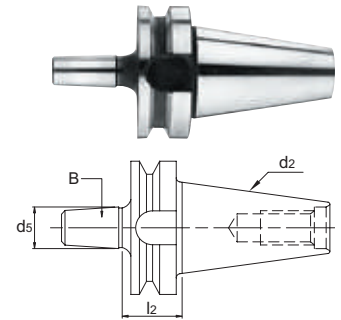
DIN 238 SK HRC 60^{±2} AT3 \downarrow 0,005 G6,3 12.000 RPM

Ref.	d2	B	d5	l2
84.174.4012	SK40	B12	12.065	17
84.174.4016	SK40	B16	15.733	17
84.174.4018	SK40	B18	17.78	17

Ref.	d2	B	d5	l2
84.174.5016	SK50	B16	15.733	20
84.174.5018	SK50	B18	17.78	20

> **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 \downarrow 0,005 G6,3 12.000 RPM

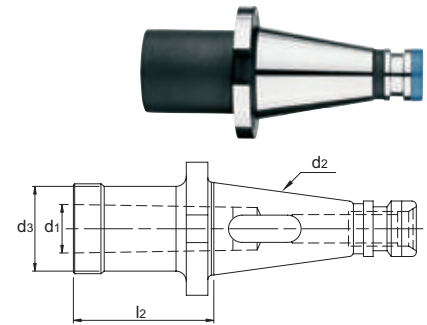
Ref.	d2	B	d5	l2
84.176.4012	BT40	B12	12.065	25
84.176.4016	BT40	B16	15.733	25
84.176.4018	BT40	B18	17.78	32

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



> 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



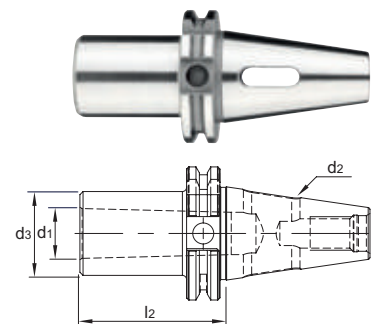
DIN 6383 SK HRC 60^{±2} AT3 \downarrow 0,005

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



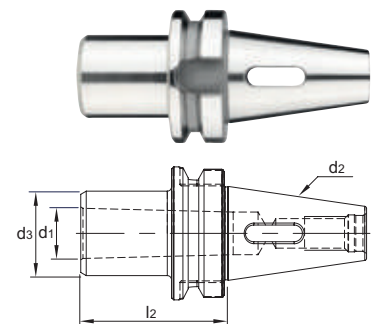
SK HRC 60^{±2} AT3 \downarrow 0,005 G6.3 15.000 RPM

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

> **84.600 Phantom**

NL **Konusreiniger**
FR **Nettoie-cônes**
ES **Limpiaconos**
DE **Kegelreiniger**



Ref.	d2
84.600.0100	1
84.600.0200	2
84.600.0300	3
84.600.0400	4

Ref.	d2
84.600.0500	5
84.600.3000	30
84.600.4000	40
84.600.5000	50

> **84.610 Phantom**

NL **Konusuitdrijver**
FR **Chasse-cônes**
ES **Cuña expulsora**
DE **Kegelaustreiber**



DIN
317

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

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

> **84.620 Phantom**

NL **Konusuitdrijver**
FR **Chasse-cônes**
ES **Cuña expulsora**
DE **Kegelaustreiber**

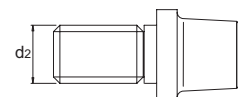


Ref.	Nr.	Ø mm	l1
84.620.0100	1	1-3	317

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

> **84.745 INTERNATIONAL TOOLS**

NL **MK Uitdrijflijp, voor Spantanghouder 82.511**
FR **Tenons à visser CM, pour Mandrin porte-pinces 82.511**
ES **Tornillo de expulsión, para Portapinzas 82.511**
DE **Einschraubbare MK Austreiblappen, für Spannzangenfutter 82.511**

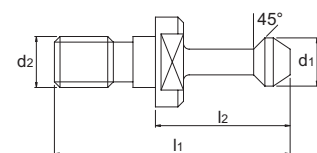


Ref.	Type
84.745.1000	2
84.745.1200	3

Ref.	Type
84.745.1600	4

> **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

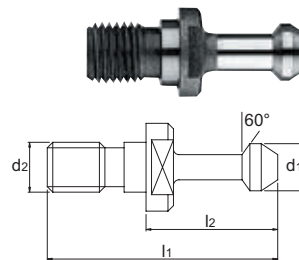
Ref.	Type	d1	l1	l2
84.750.1600	BT-40 45°	15	60	35
84.750.1601	BT-40 45°	15	60	35

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

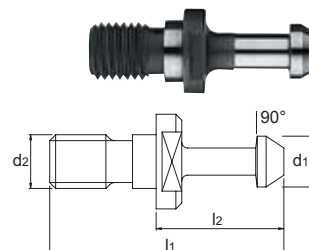


MAS-BT

Ref.	Type	d1	l1	l2	Ref.	Type	d1	l1	l2
84.751.1600	BT-40 60°	15	60	35	84.751.2400	BT-50 60°	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°

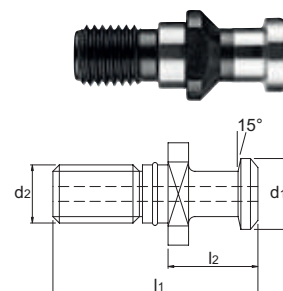


MAS-BT

Ref.	Type	d1	l1	l2	Ref.	Type	d1	l1	l2
84.752.1600	BT-40 90°	15	60	35	84.752.2400	BT-50 90°	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

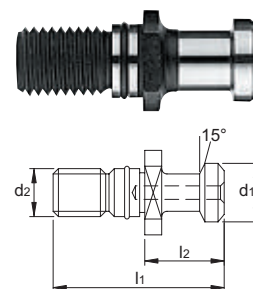


DIN
69872-A

Ref.	Type	d1	l1	l2	Ref.	Type	d1	l1	l2
84.760.1600	DIN 40 A2	19	54	26	84.760.2400	DIN 50 A2	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

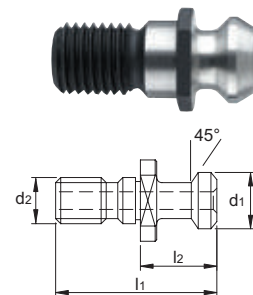


DIN
69872-B

Ref.	Type	d1	l1	l2	Ref.	Type	d1	l1	l2
84.770.1600	DIN 40 B2	19	54	26	84.770.2400	DIN 50 B2	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



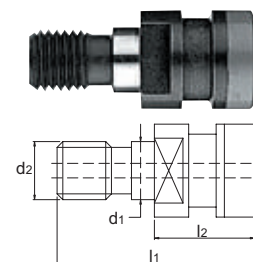
ISO
7388/2-B

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

Ref.	Type	d1	l1	l2
84.775.2400	DIN 50 B1	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



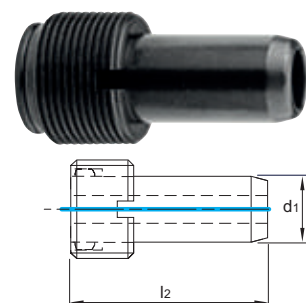
OTT-
90°

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

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

> **84.790 Phantom**

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



HSK-A

Ref.	Type	d1	l1
84.790.1800	HSK63	12	34.5

Ref.	Type	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



HSK-A

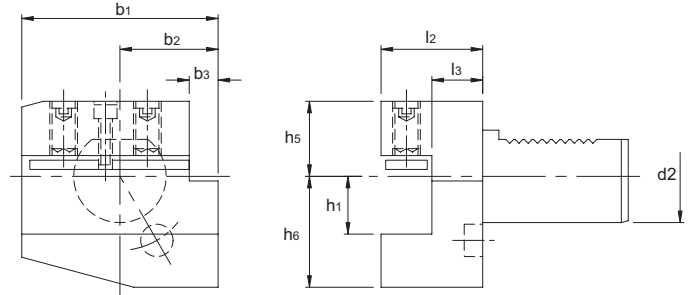
Ref.	Type
84.791.1800	HSK63

Ref.	Type



> 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

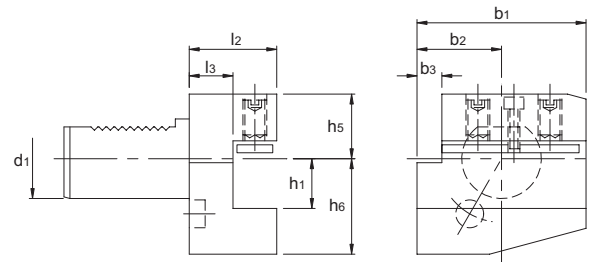


Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.910.3024	30	40	22	20	28	38	70	35	10
84.910.4024	40	44	22	25	32.5	48	85	42.5	12.5

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

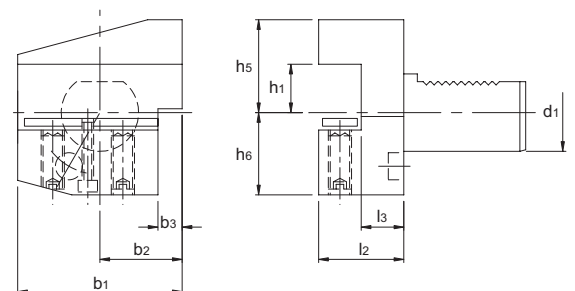


Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.911.3024	30	40	22	20	28	38	70	35	10
84.911.4024	40	44	22	25	32.5	48	85	42.5	12.5

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

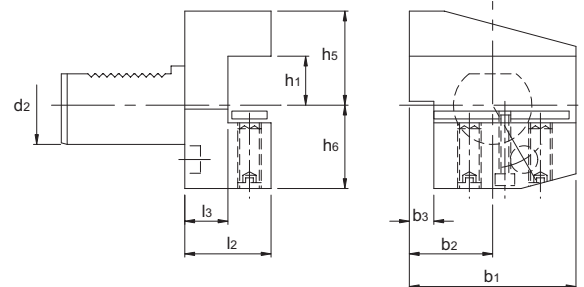


Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.912.3024	30	40	22	20	38	35	70	35	10
84.912.4024	40	44	22	25	48	42.5	85	42.5	12.5

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**

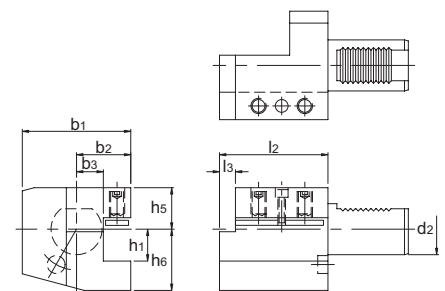


Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.913.3024	30	40	22	20	38	35	70	35	10
84.913.4024	40	44	22	25	48	42.5	85	42.5	12.5

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**



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

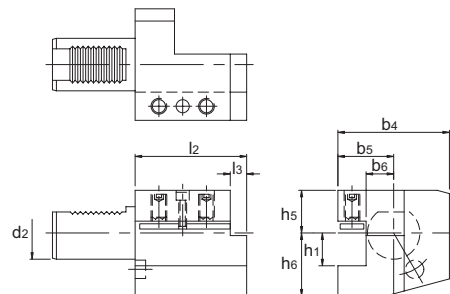
Ref.	d2	l2	l3	h1	h5	h6	b1	b2	b3
84.920.5031	50	100	16	32	35	60	100	50	26





> 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

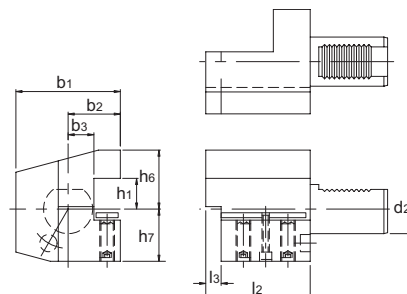


Ref.	d2	l2	l3	h1	h5	h6	b4	b5	b6
84.921.3027	30	70	10	20	28	38	70	41	23
84.921.4029	40	85	12.5	25	32.5	48	85	47.5	25.5

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

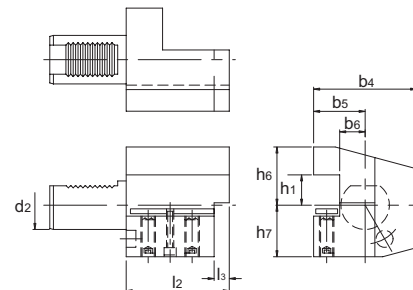


Ref.	d2	l2	l3	h1	h6	h7	b1	b2	b3
84.922.3027	30	70	10	20	38	35	70	35	17
84.922.4028	40	85	12.5	25	48	42.5	85	42.5	21

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**

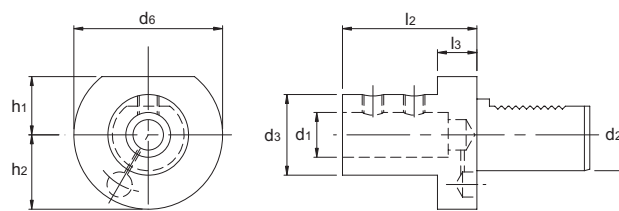


Ref.	d2	l2	l3	b4	b5	b6	h1	h6	h7
84.923.3027	30	70	10	70	35	17	20	35	38
84.923.4029	40	85	12.5	85	42.5	21	25	42.5	48

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**



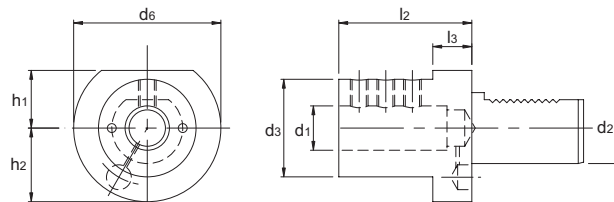
Ref.	d2	d1	d3	d6	h1	h2	l2	l3
84.950.3016	30	16	36	68	28	30	64	22
84.950.3020	30	20	40	68	28	30	67	22
84.950.3025	30	25	45	68	28	30	71	22
84.950.3032	30	32	52	68	28	30	75	22
84.950.4016	40	16	36	83	32.5		64	22
84.950.4020	40	20	40	83	32.5		67	22
84.950.4025	40	25	45	83	32.5		75	22
84.950.4032	40	32	52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

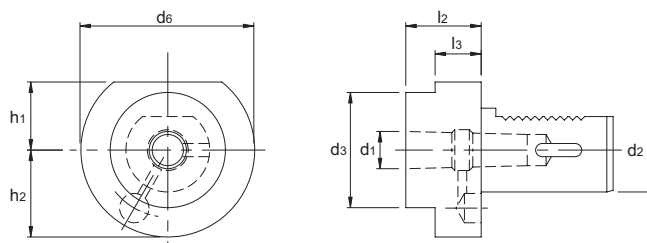


Ref.	d2	d1	d3	d6	h1	h2	l2	l3
84.951.3008	30	8	55	68	28	30	60	22
84.951.3010	30	10	55	68	28	30	60	22
84.951.3012	30	12	55	68	28	30	60	22
84.951.3016	30	16	55	68	28	30	60	22
84.951.3020	30	20	55	68	28	30	60	22
84.951.3025	30	25	55	68	28	30	60	22
84.951.3032	30	32	55	68	28	30	75	22
84.951.4008	40	8	55	83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

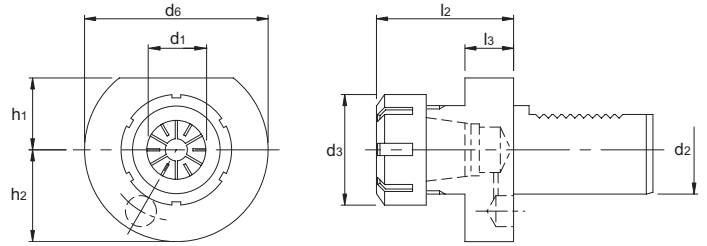
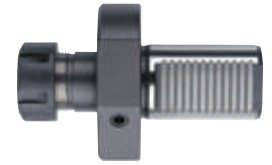


Ref.	d2	d1	d3	l2	l3	d6	h1	h2
84.955.3001	30	1	27	68	28	30		
84.955.3002	30	2	27	68	28	30		
84.955.3003	30	3	40	68	28	30	58	22
84.955.4002	40	2	36	83	32.5		55	22
84.955.4003	40	3	36	83	32.5		55	22

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

> **84.958** **Phantom**

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

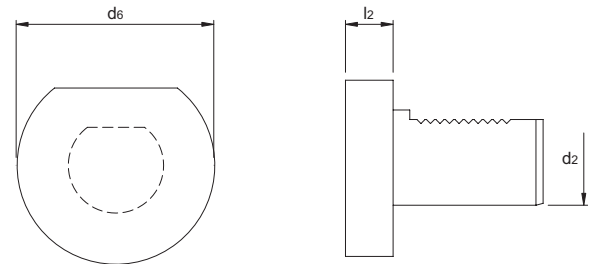


Ref.	d2	d1	d6	d3	h1	l2	l3	h2	Ø mm
84.958.3025	30	ER25	68	42	28	57	22	34	2-16
84.958.3032	30	ER32	68	50	28	75	22	34	2-20
84.958.3040	30	ER40	68	63	28	75	22	34	3-26
84.958.4025	40	ER25	83	42	32.5	75	22	41.5	2-16

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

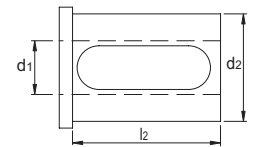


Ref.	d2	l2	d6
84.961.3068	30	20	68
84.961.4083	40	20	83

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



1 SC



1 HSS(+)



2



3 SC



3 HSS-E



4



5



6



7



8



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