



f. britsch

alles. immer. schnell.

IFANGER MICROTURNT MINIAUSDREHWERKZEUGE V5.3

BEI UNS BEKOMMEN SIE ALLES, WAS SIE ZUM
DREHEN BRAUCHEN

WITH US YOU GET ALL THE TOOLS THAT YOU NEED
FOR THE TURNING PARTS INDUSTRY

VOUS ALLEZ TROUVER TOUT CE QUE VOUS AVEZ
BESOIN POUR LE DÉCOLLETAGE

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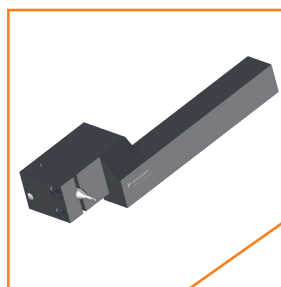


Swiss-MicroTurn Werkzeuge

MTEC Eckstahl 12	MTEN Eckstahl neutral 14	MTEF Eckstahl Chip Control finishing 16	MTEP Eckstahl Chip Control 18	MTEE Eckstahl freigestellt 20
MTKN Kopierstahl neutral 21	MTKH Kopierstahl 3° / 47° 22	MTKO Kopierstahl 8° / 32° 23	MTKR Rückwärts- Kopierstahl 24	MTGE Gewindestahl 60° 26
MTGW Gewindestahl 55° 27	MTNU Nutenstahl 28	MTNN Nutenstahl neutral 29	MTNR Nutenstahl Vollradius 30	MTFA Facettierstahl 31
MTNX Axialstechstahl 32	MTNY Axialstechstahl 33	MTR0 Rohling 33		

Swiss-MicroTurn Halter

RUNDSCHAFT- HALTER	RÜCKSEITEN- HALTER	VIERKANTSCHAFT- HALTER	SONDER- LÖSUNGEN
34	42	45	58



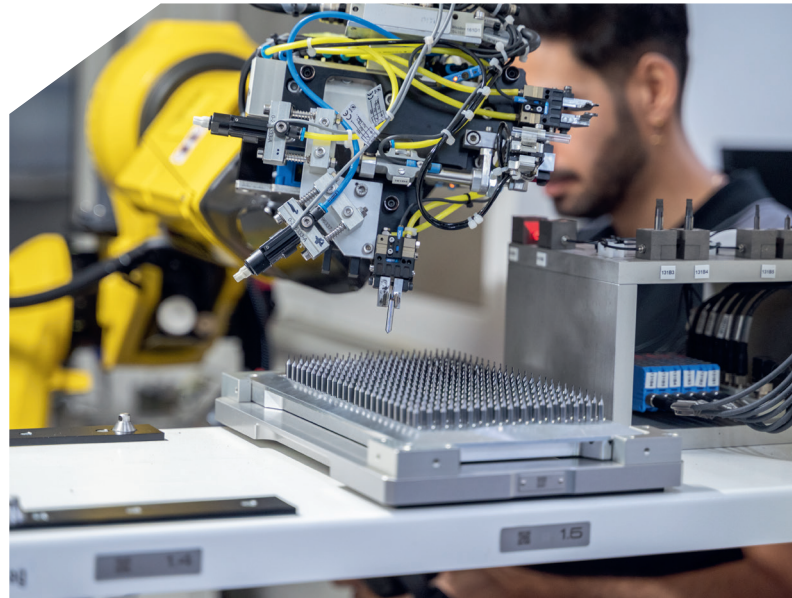
Swiss Tools

Geschichte und Werte

Als «Swiss-Made-Produkt» steht Swiss-MicroTurn für Qualität und Zuverlässigkeit. Das Ergebnis des unermüdlichen Engagements des IFANGER-Teams ist, die Grenzen der Innovation zu erweitern und gleichzeitig die Qualitäts- und Leistungsstandards zu übertreffen.

Aus dieser Grundhaltung entwickelte IFANGER die Monoblock-Werkzeugfamilie «Swiss-MicroTurn». Sie gilt als das Original unter den Mikro-Drehwerkzeugen für die Innenbearbeitung. Über Jahrzehnte wurden diese konsequent unter dem Label Swiss Made weiterentwickelt und perfektioniert.

«Swiss-type automatic lathe» steht international für Langdrehautomat. Die Erfindung ist dem Uhrenmacher Jakob Schweizer im Jahre 1872 zugeschrieben. Diese Technologie verkörpert alle Aspekte der Schweizer Fertigungsindustrie.



1917 legte Eduard Ifanger als Werkzeugpionier mit der Markteinführung von modularen und nachschärfbaren Drehwerkzeugen das Fundament für die Erfolgsgeschichte. Bis heute ist das familiengeführte Unternehmen bestrebt, Werkzeugkonzepte mit dem entscheidenden «technologischen Vorsprung» zu entwickeln.

Die Entwicklung und Produktion erfolgen vollumfänglich in der Schweiz unter höchsten Qualitätsstandards.

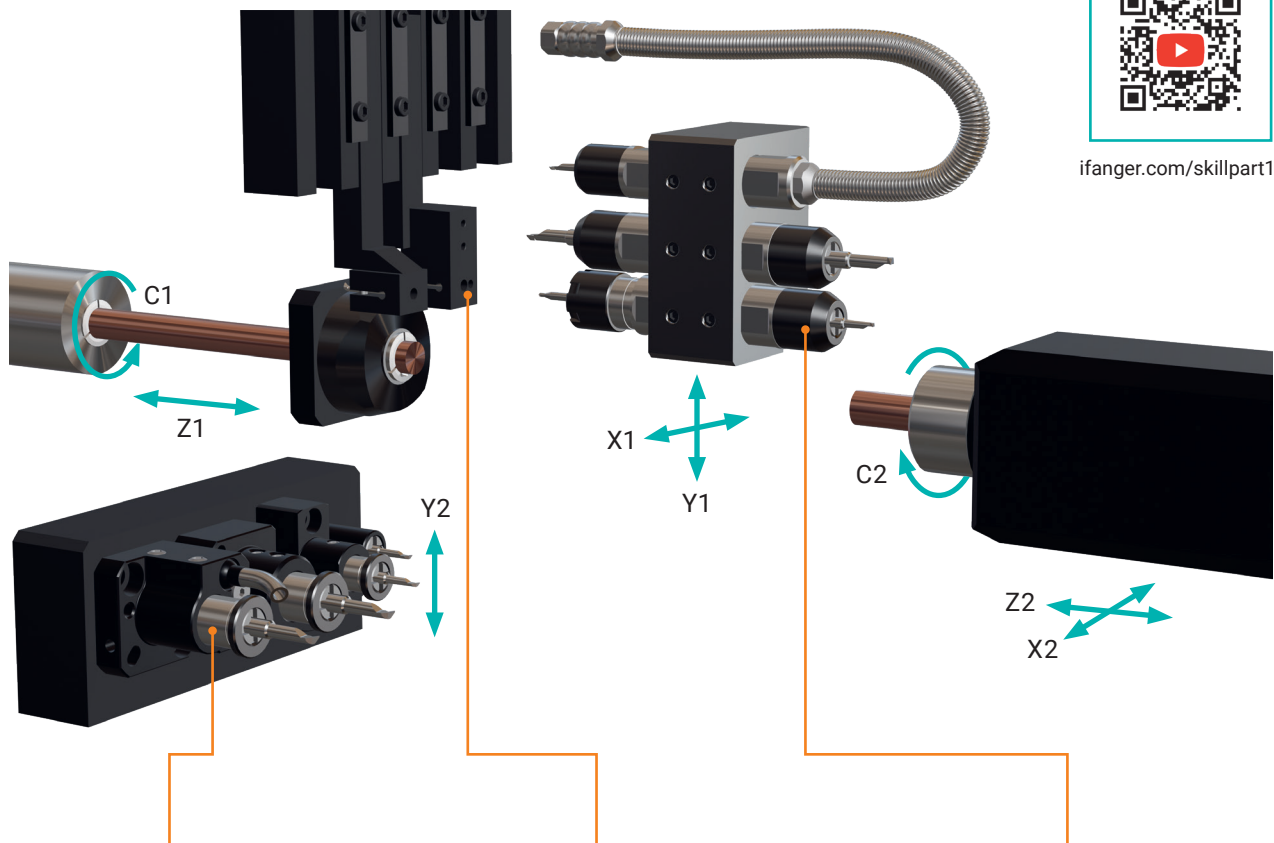
Swiss-MicroTurn System

For Swiss-type lathes

Die Swiss-MicroTurn Werkzeuge sind für die kompromisslose Hochleistungsfertigung auf Langdrehautomaten konzipiert und haben sich millionenfach bewährt. Die Werkzeugkonzepte zeichnen sich durch ihre enorme Präzision, Zuverlässigkeit und Wirtschaftlichkeit aus.



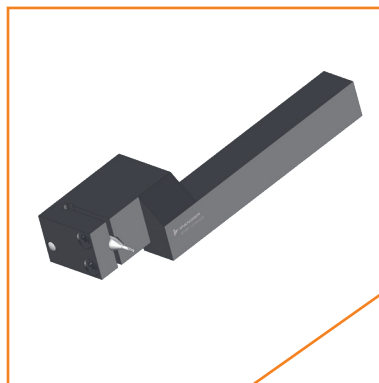
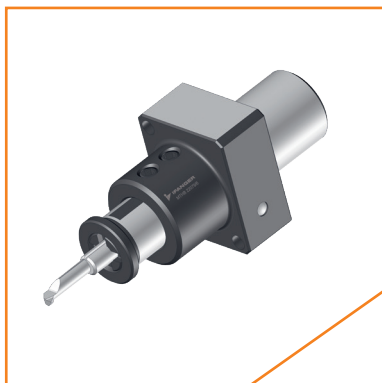
ifanger.com/skillpart1



RÜCKSEITENHALTER

VIERKANTSCHAFTHALTER

RUNDSCHAFTHALTER



Swiss-MicroTurn System

Funktionen und Benefits

Das Swiss-MicroTurn Werkzeugsystem bietet höchste Präzision, Effizienz, Flexibilität und Verlässlichkeit für die Bearbeitung verschiedenster Werkstoffe. Es verbessert Arbeitsbedingungen und Endproduktqualität durch einen grossen Kühlmittelkanal, der für bessere Kühlung, Schmierung, Spanabfuhr, höhere Bearbeitungsqualität und Werkzeugstandzeit sorgt. Die einzigartigen Rundhalter steigern Flexibilität, Sicherheit und Komfort für den Maschinenoperateur, besonders in anspruchsvollen Arbeitsumgebungen wie engen und öligen Maschinenräumen, was die Effizienz und Sicherheit der Arbeitsabläufe erheblich erhöht.



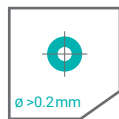
ULTRA-SHARP



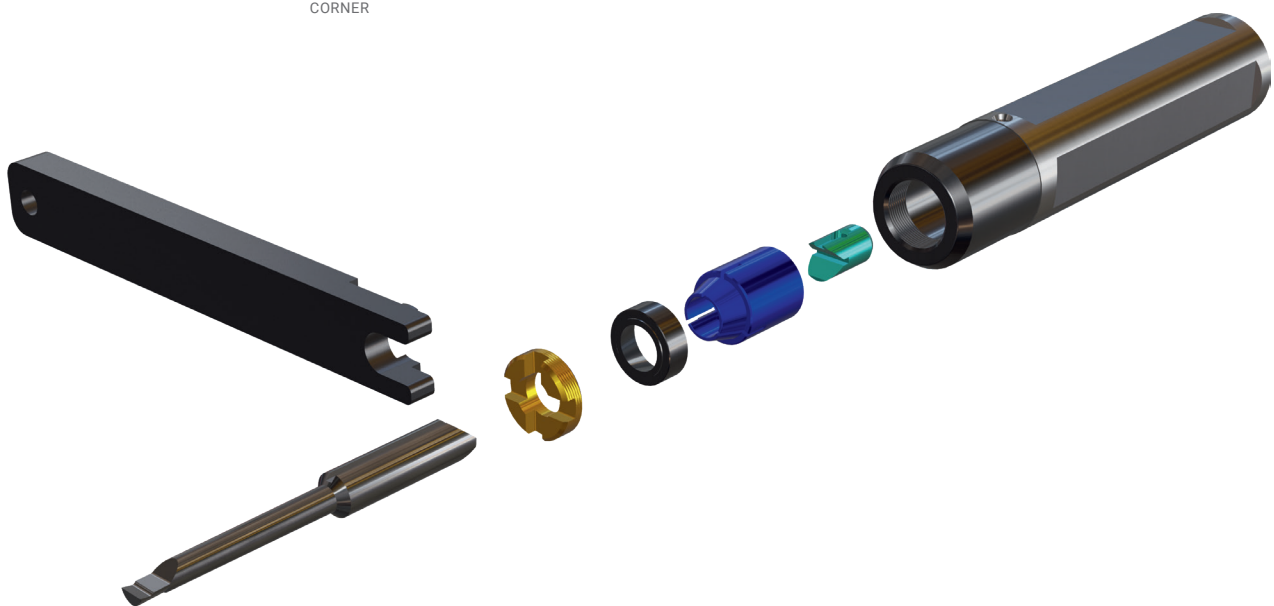
CHIP CONTROL



CHOICES OF CUTTING CORNER



MICRO BORING



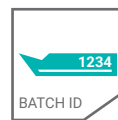
ifanger.com/microturn



MICROGRAIN CARBIDE



HIGH PERFORMANCE COATINGS



TRACEABILITY QUALITY



TOOL LIFETIME



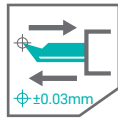
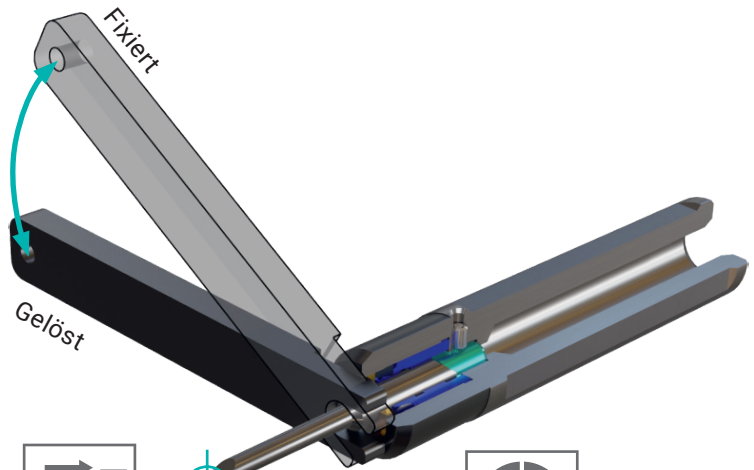
HIGH STOCK AVAILABILITY 300'000+ ITEMS



SAFER TOOL CHANGE



QUICK CHANGE



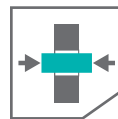
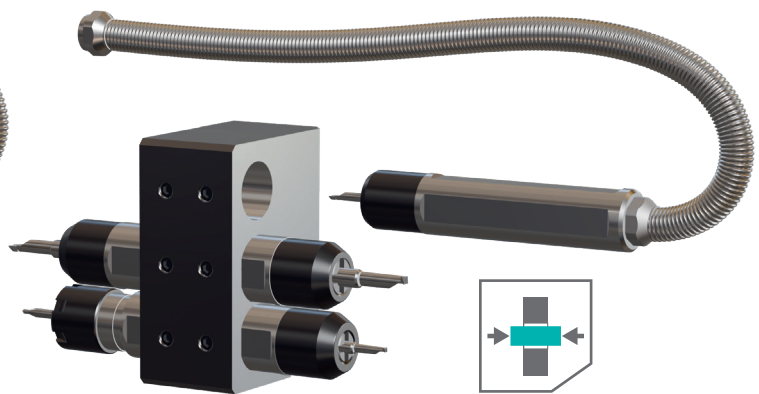
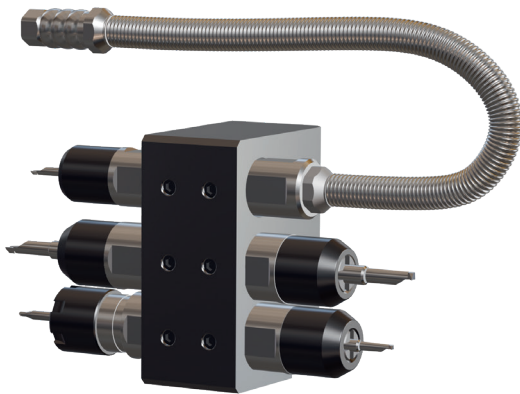
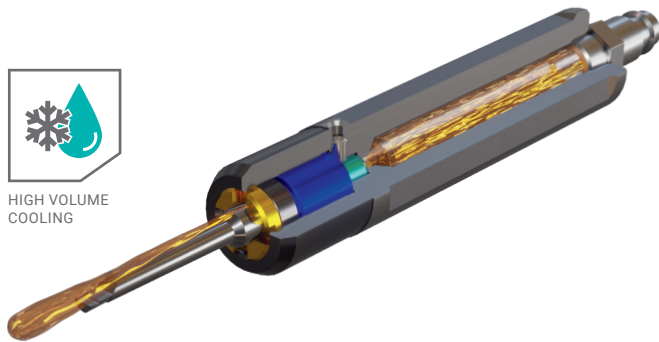
REPEATED POSITIONING ACCURACY



VIBRATION ABSORBING TOOL CLAMPING



HIGH VOLUME COOLING



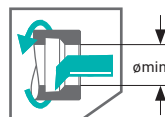
HOLDER LEFT OR RIGHT INSERTION

Nomenklatur

Für Swiss-MicroTurn Schneidwerkzeuge



Bestellnummer



L = LEFT



CHOICES OF CUTTING CORNER



R = RIGHT



HIGH PERFORMANCE COATINGS

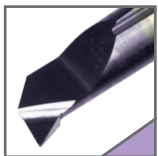
Zusammensetzung
Bestellnummer

M	T	K	H	4	3	2	1	7		R	TiAlN
Brand	Typ			$\varnothing S$	\varnothing_{min}	L_1	R			Drehrichtung	Beschichtung
Swiss-MicroTurn	Kopierstahl 3° / 47°			4 mm	3.2 mm	17 mm	0.08 mm			Rechts	Titanium-Aluminium-Nitrid

Schneidstoffe

Hartmetallsorten und Beschichtungen

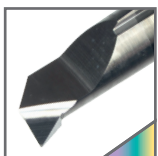
Beschichtungen (Coatings) verbessern primär die Verschleissfestigkeit der Werkzeuge und ermöglichen höhere Schnittgeschwindigkeiten. Die Werkzeugschneide wird vor Kolkverschleiss und abrasivem Abtrag des ablaufenden Spans geschützt mit dem Ziel, das Werkzeug möglichst lange schnittig zu halten. Zusätzlich tragen Beschichtungen zum Korrosionsschutz und der Reduktion der Druckeigenspannung im Hartmetall bei.



TiAlN (Titan-Aluminium-Nitrid)

Titan-Aluminium-Nitrid-Beschichtungen sind besonders gut für die Zerspanung von harten und zähen

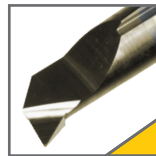
Werkstoffen wie zum Beispiel rostfreiem Stahl und Titanlegierungen geeignet. Sie werden bei der Bearbeitung von Stahl, Nichteisenmetallen und Kunststoffen als Allround-Beschichtung eingesetzt. Die wirkungsvollste Massnahme zur Reduzierung des Kolkverschleisses stellt die TiAlN-Beschichtung dar. Die TiAlN-Schicht schützt die Schneide vor allem durch ihre gegenüber dem Substrat wesentlich höhere Härte und führt zu einer signifikanten Reduzierung des Abrasionsverschleisses. Die Titan-Aluminium-Nitrid-Schicht bietet zusätzlich den Vorteil einer verbesserten Ableitung der während des Zerspanungsprozesses entstehenden Wärme. Dies resultiert in einer verringerten thermischen Belastung des Werkzeuges. Eine bessere Wärmeableitung trägt auch dazu bei, die Standzeit des Werkzeugs zu erhöhen und die Genauigkeit der Bearbeitung zu verbessern, da eine Überhitzung vermieden wird.



DLC (Diamond Like Carbon)

Mit Diamant beschichtete Zerspanungswerkzeuge eignen sich für die Bearbeitung von schwerzerspanbaren oder stark abrasiv wirkenden

Werkstoffen, wie Graphit, Keramik- und Hartmetallgrünlingen, kohlenstofffaserverstärkten Kunststoffen sowie für höchste Präzision und sehr glatten Oberflächen bei der Bearbeitung von Nichteisenmetallen. Die amorphe Kohlenstoffschicht ist härter und glatter wie zum Beispiel die TiAlN-Beschichtung.



SPEC (Spezial-Beschichtungen)

Gerne bieten wir Ihnen auch massgeschneiderte Beschichtungslösungen an. Zögern Sie nicht, uns für eine persönliche Beratung zu kontaktieren.

Beispiele:

AlCrN Aluminium-Chrom-Nitrid-Beschichtungen für zähe Legierungen wie Edelstahl der 300er Serie und Stähle bis HRC 50.

AlTiSiN Aluminium-Titan-Silizium-Nitrid-Beschichtungen für Edelstahl und hochwarmfeste Legierungen sowie für die Hartbearbeitung ab HRC 55.

Hartmetall K10 Micrograin

Feinstkorn (Korngrösse 0.8 Mikrometer) mit 6 % Kobalt und 94 % Wolframkarbid. K10 eignet sich für die Zerspanung von hochfesten Werkstoffen sowie für Nichteisenmetalle und wenn hohe Schnitrigkeit und Massgenauigkeit gefordert wird. Standard für alle Swiss-MicroTurn-Stähle ausser Gewindestähle.

Hartmetall K20 Micrograin

Feinstkorn (Korngrösse 0.8 Mikrometer) mit 10 % Kobalt und 90 % Wolframkarbid. Dieses Hartmetall ist gegenüber K10 etwas weniger hart, aber deutlich zäher. Diese Hartmetallsorte eignet sich besonders für Gewindewerkzeuge.

Die Hartmetalle werden von europäischen Herstellern beschafft, die sich den Grundsätzen der «Responsible Minerals Initiative» verpflichtet haben.

Richtwerte

Schnittgeschwindigkeit (v_c)

Die optimalen Schnittwerte ($v_c / f_n / a_p$) sind von verschiedenen Faktoren abhängig, einschliesslich der Maschine, der Kühlung, der Werkzeugbeschichtung, der Werkzeughalterung sowie der gewünschten Güteklasse der zu bearbeitenden Werkstückgeometrie.

ISO	Werkstoff	N/mm ²	Beispiel	Spezifikation	v_c (m/min)	
P	P1	Automatenstähle	≤800	St 70-2 / E 360	DIN 1.0070	70 – 100
		Einsatzstähle	≤800	16 MnCr 5	DIN 1.7131	70 – 100
		Stahlguss	≤800	25 CrMo 4	DIN 1.7218	70 – 100
	P2	Einsatzstähle	≤1000	20 MoCr 3	DIN 1.7320	70 – 100
		Vergütungsstähle	≤1000	42 CrMo 4	DIN 1.7225	70 – 100
		Kaltarbeitsstähle	≤1000	102 Cr 6	DIN 1.2067	70 – 100
	P3	Hochlegierte Stähle	≤1400	X 38 CrMoV 5-3	DIN 1.2367	60 – 90
		Kaltarbeitsstähle	≤1400	X 100 CrMoV 8-1-1	DIN 1.2990	60 – 90
		Warmarbeitsstähle	≤1400	X 40 CrMoV 5-1	DIN 1.2344	60 – 90
	P4	Rostfreie Stähle, ferritisch	≤1200	X 17 CrNi 16-2	DIN 1.4057	60 – 80
M	M1	Rostfreie Stähle, austenitisch	≤900	X 5 CrNi 18-10	DIN 1.4301	30 – 60
	M2	Rostfreie Stähle, austenitisch, hitzebeständig	≤1200	X 2 CrNiMoN 25-7-4	DIN 1.4410	25 – 30
K	K1	Gusseisen mit Lamellengrafit	≤400	EN GJL 300 (GG30)	DIN 1561	40 – 80
	K2	Gusseisen mit Kugelgrafit	≤900	EN GJS 700 2 (GGG70)	DIN 1563	40 – 70
	K3	Gusseisen mit Vermiculargrafit	≤500	GJV 450		40 – 80
N	N1	Aluminium-Knetlegierungen	≤250	AlMg 1	DIN 3.3315	80 – 150
	N2	Aluminium-Knetlegierungen	≤550	AlZn 5 Mg 3 Cu	DIN 3.4345	80 – 150
	N4	Reinkupfer, niedriglegiertes Kupfer	≤500	E-Cu 57		80 – 150
		Messing mit Blei, kurzspanend	≤540	CuZn 39 Pb 3 / CuZn 36 Pb 3		80 – 150
	Messing ohne Blei, langspanend	≤700	CuZn 42 / CuZn 21 Si 3 P		30 – 60	
S	S1	Titan-Legierungen	≤1250	Ti 6 Al 4 V	WL 3.7164	40 – 60
	S2	Titan-Legierungen	≤1400	Ti 4 Al 4 Mo 2 Sn	WL 3.7184	40 – 60
	S3	Nickel-Legierungen	≤1000	NiCu 30 Fe (Alloy 400)	DIN 2.436	20 – 40
	S4	Nickel-Legierungen	≤1600	NiCr 19 Fe 19 Nb 5 Mo 3 (INCONEL)	DIN 2.4668	20 – 40
O	O1	Duroplaste (kurzspanend)		Bakelit, Pertinax		Auf Anfrage
	O2	Faserverstärkte Kunststoffe (Faseranteil ≤ 30 %)		GFK, CFK, AFK		Auf Anfrage
	O3	Grafit		C 800		Auf Anfrage

Richtwerte

Vorschub (f_n)

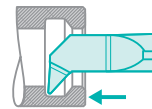
Eckstahl

MTEC, MTEN*, MTEE,
MTEF***, MTEP***



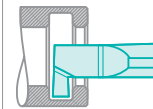
Kopierstahl

MTKN*, MTKH, MTKO,
MTKR



Nutenstahl

MTNU, MTNR, MTNN



Axial- stechstahl

MTNX, MTNY

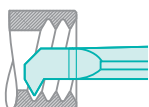


Material		\varnothing min 1.0–2.5 mm	\varnothing min >2.5 mm		\varnothing min >1.0 mm		\varnothing min >2.0 mm		\varnothing min >6.0 mm
ISO		f_n (mm)	f_n (mm)	**	f_n (mm)	**	f_n (mm)	**	f_n (mm)
P	P1	0.02 – 0.04	0.03 – 0.08		0.05 – 0.15		0.02 – 0.06		0.02 – 0.05
		0.02 – 0.04	0.03 – 0.08		0.05 – 0.15		0.02 – 0.06		0.02 – 0.05
		0.02 – 0.04	0.03 – 0.08		0.05 – 0.15		0.02 – 0.06		0.02 – 0.05
		0.01 – 0.03	0.03 – 0.07		0.05 – 0.12		0.02 – 0.06		0.02 – 0.05
		0.01 – 0.03	0.03 – 0.07		0.05 – 0.12		0.02 – 0.06		0.02 – 0.05
		0.01 – 0.03	0.03 – 0.07		0.05 – 0.12		0.02 – 0.06		0.02 – 0.05
	P2	0.005 – 0.02	0.03 – 0.06		0.03 – 0.10		0.015 – 0.04		0.01 – 0.03
		0.005 – 0.02	0.03 – 0.06		0.03 – 0.10		0.015 – 0.04		0.01 – 0.03
		0.005 – 0.02	0.03 – 0.06		0.03 – 0.10		0.015 – 0.04		0.01 – 0.03
		0.005 – 0.02	0.03 – 0.06		0.03 – 0.10		0.015 – 0.04		0.01 – 0.03
		0.005 – 0.02	0.03 – 0.06		0.03 – 0.10		0.015 – 0.04		0.01 – 0.03
		0.005 – 0.02	0.03 – 0.06		0.03 – 0.10		0.015 – 0.04		0.01 – 0.03
M	M1	0.01 – 0.03	0.02 – 0.05		0.005 – 0.01		0.005 – 0.01		0.005 – 0.01
	M2	0.005 – 0.02	0.02 – 0.06		0.003 – 0.06		0.003 – 0.006		0.003 – 0.006
K	K1	0.01 – 0.03	0.04 – 0.08	MTEN	0.05 – 0.15	MTKN	0.02 – 0.07	MTNN	0.02 – 0.05
	K2	0.01 – 0.03	0.03 – 0.08	MTEN	0.003 – 0.12	MTKN	0.02 – 0.05	MTNN	0.01 – 0.04
	K3	0.01 – 0.03	0.04 – 0.08	MTEN	0.05 – 0.15	MTKN	0.02 – 0.07	MTNN	0.02 – 0.05
N	N1	0.01 – 0.05	0.03 – 0.08		0.05 – 0.15		0.03 – 0.06		0.02 – 0.05
	N2	0.01 – 0.05	0.03 – 0.08		0.05 – 0.15		0.03 – 0.06		0.02 – 0.05
	N4	0.01 – 0.05	0.03 – 0.08		0.05 – 0.15		0.03 – 0.06		0.02 – 0.05
		0.02 – 0.05	0.03 – 0.08	MTEN	0.05 – 0.15	MTKN	0.03 – 0.06	MTNN	0.02 – 0.05
		***	***	MTEF					
	***	***	MTEP						
S	S1	0.01 – 0.03	0.02 – 0.05		0.02 – 0.1		0.02 – 0.05		0.01 – 0.03
	S2	0.01 – 0.03	0.02 – 0.05		0.02 – 0.1		0.02 – 0.05		0.01 – 0.03
	S3	0.005 – 0.02	0.01 – 0.04		0.02 – 0.08		0.01 – 0.04		0.005 – 0.02
	S4	0.005 – 0.02	0.01 – 0.04		0.02 – 0.08		0.01 – 0.04		0.005 – 0.02
O	O1	Auf Anfrage							
	O2	Auf Anfrage							
	O3	Auf Anfrage							

Gewindestahl

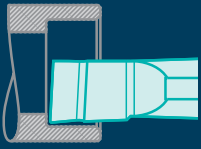
MTGE, MTGW

Schnitttiefe (a_p) und Anzahl Schnitte (N) aus den entsprechenden Werkzeugseiten entnehmen



Hinweise

- * MTEN, MTKN: Für Bohrungsdurchmesser <1 mm mit maximalem Vorschub von 0.01 mm beginnen
- ** Empfohlenes Werkzeug
- *** MTEF, MTEP: Schnitttiefe (a_p) und Vorschub (f_n) aus dem Diagramm auf den entsprechenden Werkzeugseiten entnehmen



MTEC

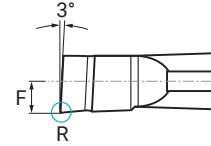
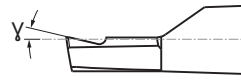
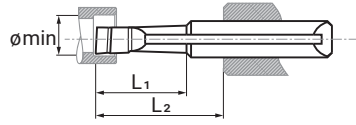
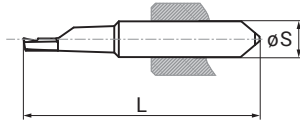
Eckstahl
Spanwinkel (γ) = 6–12°



P **M** **N*** **S** **O** *Messing mit Blei: MTEEN verwenden
Messing ohne Blei: MTEP, MTEF verwenden

Richtwerte (V_c / f_n) Seite 10–11

Hartmetallsorten und Beschichtungen (Coatings) Seite 9

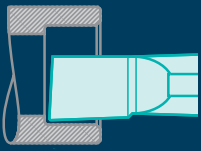


ømin	øS	L	L ₁	L ₂	F	γ	R			Ref. N°	Rotation		Coating				
							Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC	
1.0	4	26	3	10	0.50	6°	0				MTEC 410030	●	●	●	●	○	○
1.0	4	26	3	10	0.50	6°		0.02 × 45°			MTEC 41003	●	●	●	●	○	○
1.0	4	26	5	10	0.50	6°	0				MTEC 410050	●	●	●	●	○	○
1.0	4	26	5	10	0.50	6°		0.02 × 45°			MTEC 41005	●	●	●	●	○	○
1.2	4	31	4	15	0.60	12°	0				MTEC 412040	●	●	●	●	○	○
1.2	4	31	4	15	0.60	12°		0.02 × 45°			MTEC 41204	●	●	●	●	○	○
1.2	4	31	7	15	0.60	12°	0				MTEC 412070	●	●	●	●	○	○
1.2	4	31	7	15	0.60	12°		0.02 × 45°			MTEC 41207	●	●	●	●	○	○
1.5	4	31	5	15	0.75	12°	0				MTEC 415050	●	●	●	●	○	○
1.5	4	31	5	15	0.75	12°		0.02 × 45°			MTEC 41505	●	●	●	●	○	○
1.5	4	31	8	15	0.75	12°	0				MTEC 415080	●	●	●	●	○	○
1.5	4	31	8	15	0.75	12°		0.02 × 45°			MTEC 41508	●	●	●	●	○	○
1.8	4	31	5	15	0.90	12°	0				MTEC 418050	●	●	●	●	○	○
1.8	4	31	5	15	0.90	12°		0.03 × 45°			MTEC 41805	●	●	●	●	○	○
1.8	4	31	9	15	0.90	12°	0				MTEC 418090	●	●	●	●	○	○
1.8	4	31	9	15	0.90	12°		0.03 × 45°			MTEC 41809	●	●	●	●	○	○
1.8	4	31	14	15	0.90	12°	0				MTEC 418140	●	●	●	●	○	○
1.8	4	31	14	15	0.90	12°		0.03 × 45°			MTEC 41814	●	●	●	●	○	○
2.2	4	31	6	15	1.10	12°	0				MTEC 422060	●	●	●	●	○	○
2.2	4	31	6	15	1.10	12°			R0.05		MTEC 42206	●	●	●	●	○	○
2.2	4	31	10	15	1.10	12°	0				MTEC 422100	●	●	●	●	○	○
2.2	4	31	10	15	1.10	12°			R0.05		MTEC 42210	●	●	●	●	○	○
2.2	4	31	14	15	1.10	12°	0				MTEC 422140	●	●	●	●	○	○
2.2	4	31	14	15	1.10	12°			R0.05		MTEC 42214	●	●	●	●	○	○
2.5	4	31	6	15	1.25	12°	0				MTEC 425060	●	●	●	●	○	○
2.5	4	31	6	15	1.25	12°			R0.05		MTEC 42506	●	●	●	●	○	○
2.5	4	31	10	15	1.25	12°	0				MTEC 425100	●	●	●	●	○	○
2.5	4	31	10	15	1.25	12°			R0.05		MTEC 42510	●	●	●	●	○	○
2.5	4	31	14	15	1.25	12°	0				MTEC 425140	●	●	●	●	○	○
2.5	4	31	14	15	1.25	12°			R0.05		MTEC 42514	●	●	●	●	○	○
3.2	4	31	8	15	1.60	12°	0				MTEC 432080	●	●	●	●	○	○
3.2	4	31	8	15	1.60	12°			R0.05		MTEC 432085	●	●	●	●	○	○
3.2	4	31	8	15	1.60	12°			R0.08		MTEC 43208	●	●	●	●	○	○
3.2	4	31	12	15	1.60	12°	0				MTEC 432120	●	●	●	●	○	○
3.2	4	31	12	15	1.60	12°			R0.05		MTEC 432125	●	●	●	●	○	○
3.2	4	31	12	15	1.60	12°			R0.08		MTEC 43212	●	●	●	●	○	○
3.2	4	36	17	20	1.60	12°	0				MTEC 432170	●	●	●	●	○	○

Dimensions in mm

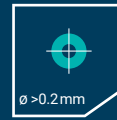
ømin	øS	L	L ₁	L ₂	F	γ	R			Ref. N°	Rotation		Coating			
							△	△	△		R	L	K10	TiAIN	DLC	SPEC
3.2	4	36	17	20	1.60	12°			R0.05	MTEC 432175	●	●	●	●	○	○
3.2	4	36	17	20	1.60	12°			R0.08	MTEC 43217	●	●	●	●	○	○
4.0	4	31	10	15	1.95	12°	0			MTEC 440100	●	●	●	●	○	○
4.0	4	31	10	15	1.95	12°			R0.05	MTEC 440105	●	●	●	●	○	○
4.0	4	31	10	15	1.95	12°			R0.12	MTEC 44010	●	●	●	●	○	○
4.0	4	31	14	15	1.95	12°	0			MTEC 440140	●	●	●	●	○	○
4.0	4	31	14	15	1.95	12°			R0.05	MTEC 440145	●	●	●	●	○	○
4.0	4	31	14	15	1.95	12°			R0.12	MTEC 44014	●	●	●	●	○	○
4.0	4	36	19	20	1.95	12°	0			MTEC 440190	●	●	●	●	○	○
4.0	4	36	19	20	1.95	12°			R0.05	MTEC 440195	●	●	●	●	○	○
4.0	4	36	19	20	1.95	12°			R0.12	MTEC 44019	●	●	●	●	○	○
4.0	6	48	25	29	1.95	12°	0			MTEC 640250	●	●	●	●	○	○
4.0	6	48	25	29	1.95	12°			R0.05	MTEC 640255	●	●	●	●	○	○
4.0	6	48	25	29	1.95	12°			R0.12	MTEC 64025	●	●	●	●	○	○
4.0	6	53	30	34	1.95	12°	0			MTEC 640300	●	●	●	●	○	○
4.0	6	53	30	34	1.95	12°			R0.05	MTEC 640305	●	●	●	●	○	○
4.0	6	53	30	34	1.95	12°			R0.12	MTEC 64030	●	●	●	●	○	○
5.0	6	35	12	16	2.50	12°			R0.05	MTEC 650125	●	●	●	●	○	○
5.0	6	35	12	16	2.50	12°			R0.15	MTEC 65012	●	●	●	●	○	○
5.0	6	43	17	24	2.50	12°			R0.05	MTEC 650175	●	●	●	●	○	○
5.0	6	43	17	24	2.50	12°			R0.15	MTEC 65017	●	●	●	●	○	○
5.0	6	48	25	29	2.50	12°			R0.05	MTEC 650255	●	●	●	●	○	○
5.0	6	48	25	29	2.50	12°			R0.15	MTEC 65025	●	●	●	●	○	○
5.0	6	53	32	34	2.50	12°			R0.05	MTEC 650325	●	●	●	●	○	○
5.0	6	53	32	34	2.50	12°			R0.15	MTEC 65032	●	●	●	●	○	○
5.0	6	61	40	42	2.50	12°			R0.05	MTEC 650405	●	●	●	●	○	○
5.0	6	61	40	42	2.50	12°			R0.15	MTEC 65040	●	●	●	●	○	○
6.0	6	35	12	16	2.95	12°			R0.05	MTEC 660125	●	●	●	●	○	○
6.0	6	35	12	16	2.95	12°			R0.20	MTEC 66012	●	●	●	●	○	○
6.0	6	43	20	24	2.95	12°			R0.05	MTEC 660205	●	●	●	●	○	○
6.0	6	43	20	24	2.95	12°			R0.20	MTEC 66020	●	●	●	●	○	○
6.0	6	53	30	34	2.95	12°			R0.05	MTEC 660305	●	●	●	●	○	○
6.0	6	53	30	34	2.95	12°			R0.20	MTEC 66030	●	●	●	●	○	○
6.0	6	61	40	42	2.95	12°			R0.05	MTEC 660405	●	●	●	●	○	○
6.0	6	61	40	42	2.95	12°			R0.20	MTEC 66040	●	●	●	●	○	○
6.0	6	71	50	52	2.95	12°			R0.05	MTEC 660505	●	●	●	●	○	○
6.0	6	71	50	52	2.95	12°			R0.20	MTEC 66050	●	●	●	●	○	○

Dimensions in mm

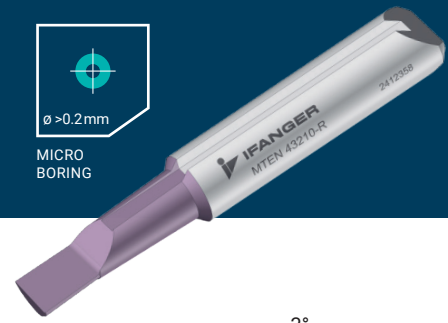


MTEN

Eckstahl neutral
Spanwinkel (γ) = 0°



MICRO
BORING

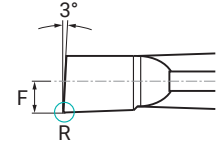
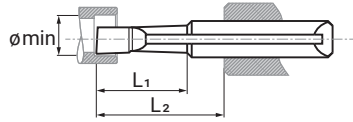
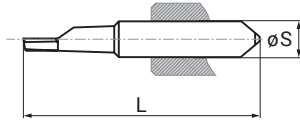


P **M** **K** **N*** **S** **O**

*Messing mit Blei: MTEN verwenden
Messing ohne Blei: MTEP, MTEF verwenden

Richtwerte (V_c / f_s) Seite 10-11

Hartmetallsorten und Beschichtungen (Coatings) Seite 9

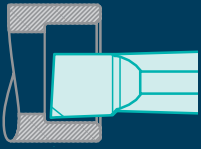


ϕmin	ϕS	L	L_1	L_2	F	γ	R			Ref. N°	Rotation		Coating			
							Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC
0.2	4	20	0.3	10	0.10	0°	0			MTEN 402010	●	●	●	●	○	○
0.3	4	26	0.4	10	0.15	0°	0			MTEN 403010	●	●	●	●	○	○
0.4	4	26	0.5	10	0.20	0°	0			MTEN 404010	●	●	●	●	○	○
0.5	4	26	0.6	10	0.25	0°	0			MTEN 405010	●	●	●	●	○	○
0.5	4	26	1.5	10	0.25	0°	0			MTEN 405020	●	●	●	●	○	○
0.7	4	26	0.8	10	0.35	0°	0			MTEN 407010	●	●	●	●	○	○
0.7	4	26	2.0	10	0.35	0°	0			MTEN 407020	●	●	●	●	○	○
0.7	4	26	2.0	10	0.35	0°		0.02 × 45°		MTEN 40702	●	●	●	●	○	○
1.0	4	26	1.2	10	0.50	0°	0			MTEN 410020	●	●	●	●	○	○
1.0	4	26	3.0	10	0.50	0°	0			MTEN 410030	●	●	●	●	○	○
1.0	4	26	3.0	10	0.50	0°		0.02 × 45°		MTEN 41003	●	●	●	●	○	○
1.0	4	26	5.0	10	0.50	0°	0			MTEN 410050	●	●	●	●	○	○
1.0	4	26	5.0	10	0.50	0°		0.02 × 45°		MTEN 41005	●	●	●	●	○	○
1.2	4	26	2.0	10	0.60	0°	0			MTEN 412020	●	●	●	●	○	○
1.2	4	31	4.0	15	0.60	0°	0			MTEN 412040	●	●	●	●	○	○
1.2	4	31	4.0	15	0.60	0°		0.02 × 45°		MTEN 41204	●	●	●	●	○	○
1.2	4	31	7.0	15	0.60	0°	0			MTEN 412070	●	●	●	●	○	○
1.2	4	31	7.0	15	0.60	0°		0.02 × 45°		MTEN 41207	●	●	●	●	○	○
1.5	4	26	3.0	10	0.75	0°	0			MTEN 415030	●	●	●	●	○	○
1.5	4	31	5.0	15	0.75	0°	0			MTEN 415050	●	●	●	●	○	○
1.5	4	31	5.0	15	0.75	0°		0.02 × 45°		MTEN 41505	●	●	●	●	○	○
1.5	4	31	8.0	15	0.75	0°	0			MTEN 415080	●	●	●	●	○	○
1.5	4	31	8.0	15	0.75	0°		0.02 × 45°		MTEN 41508	●	●	●	●	○	○
1.8	4	26	4.0	10	0.90	0°	0			MTEN 418040	●	●	●	●	○	○
1.8	4	31	5.0	15	0.90	0°	0			MTEN 418050	●	●	●	●	○	○
1.8	4	31	5.0	15	0.90	0°		0.03 × 45°		MTEN 41805	●	●	●	●	○	○
1.8	4	31	9.0	15	0.90	0°	0			MTEN 418090	●	●	●	●	○	○
1.8	4	31	9.0	15	0.90	0°		0.03 × 45°		MTEN 41809	●	●	●	●	○	○
1.8	4	31	14.0	15	0.90	0°	0			MTEN 418140	●	●	●	●	○	○
1.8	4	31	14.0	15	0.90	0°		0.03 × 45°		MTEN 41814	●	●	●	●	○	○
2.2	4	31	6.0	15	1.10	0°	0			MTEN 422060	●	●	●	●	○	○
2.2	4	31	6.0	15	1.10	0°			R0.05	MTEN 42206	●	●	●	●	○	○
2.2	4	31	10.0	15	1.10	0°	0			MTEN 422100	●	●	●	●	○	○
2.2	4	31	10.0	15	1.10	0°			R0.05	MTEN 42210	●	●	●	●	○	○
2.2	4	31	14.0	15	1.10	0°	0			MTEN 422140	●	●	●	●	○	○
2.2	4	31	14.0	15	1.10	0°			R0.05	MTEN 42214	●	●	●	●	○	○
2.5	4	31	6.0	15	1.25	0°	0			MTEN 425060	●	●	●	●	○	○

Dimensions in mm

ømin	øS	L	L ₁	L ₂	F	γ	R			Ref. N°	Rotation		Coating			
							△	△	△		R	L	K10	TiAIN	DLC	SPEC
2.5	4	31	6.0	15	1.25	0°			R0.05	MTEN 42506	●	●	●	●	○	○
2.5	4	31	10.0	15	1.25	0°	0			MTEN 425100	●	●	●	●	○	○
2.5	4	31	10.0	15	1.25	0°			R0.05	MTEN 42510	●	●	●	●	○	○
2.5	4	31	14.0	15	1.25	0°	0			MTEN 425140	●	●	●	●	○	○
2.5	4	31	14.0	15	1.25	0°			R0.05	MTEN 42514	●	●	●	●	○	○
3.2	4	31	8.0	15	1.60	0°	0			MTEN 432080	●	●	●	●	○	○
3.2	4	31	8.0	15	1.60	0°			R0.05	MTEN 432085	●	●	●	●	○	○
3.2	4	31	8.0	15	1.60	0°			R0.08	MTEN 43208	●	●	●	●	○	○
3.2	4	31	12.0	15	1.60	0°	0			MTEN 432120	●	●	●	●	○	○
3.2	4	31	12.0	15	1.60	0°			R0.05	MTEN 432125	●	●	●	●	○	○
3.2	4	31	12.0	15	1.60	0°			R0.08	MTEN 43212	●	●	●	●	○	○
3.2	4	36	17.0	20	1.60	0°	0			MTEN 432170	●	●	●	●	○	○
3.2	4	36	17.0	20	1.60	0°			R0.05	MTEN 432175	●	●	●	●	○	○
3.2	4	36	17.0	20	1.60	0°			R0.08	MTEN 43217	●	●	●	●	○	○
4.0	4	31	10.0	15	1.95	0°	0			MTEN 440100	●	●	●	●	○	○
4.0	4	31	10.0	15	1.95	0°			R0.05	MTEN 440105	●	●	●	●	○	○
4.0	4	31	10.0	15	1.95	0°			R0.12	MTEN 44010	●	●	●	●	○	○
4.0	4	31	14.0	15	1.95	0°	0			MTEN 440140	●	●	●	●	○	○
4.0	4	31	14.0	15	1.95	0°			R0.05	MTEN 440145	●	●	●	●	○	○
4.0	4	31	14.0	15	1.95	0°			R0.12	MTEN 44014	●	●	●	●	○	○
4.0	4	36	19.0	20	1.95	0°	0			MTEN 440190	●	●	●	●	○	○
4.0	4	36	19.0	20	1.95	0°			R0.05	MTEN 440195	●	●	●	●	○	○
4.0	4	36	19.0	20	1.95	0°			R0.12	MTEN 44019	●	●	●	●	○	○
4.0	6	48	25.0	29	1.95	0°	0			MTEN 640250	●	●	●	●	○	○
4.0	6	48	25.0	29	1.95	0°			R0.05	MTEN 640255	●	●	●	●	○	○
4.0	6	48	25.0	29	1.95	0°			R0.12	MTEN 64025	●	●	●	●	○	○
4.0	6	53	30.0	34	1.95	0°	0			MTEN 640300	●	●	●	●	○	○
4.0	6	53	30.0	34	1.95	0°			R0.05	MTEN 640305	●	●	●	●	○	○
4.0	6	53	30.0	34	1.95	0°			R0.12	MTEN 64030	●	●	●	●	○	○
5.0	6	35	12.0	16	2.50	0°			R0.05	MTEN 650125	●	●	●	●	○	○
5.0	6	35	12.0	16	2.50	0°			R0.15	MTEN 65012	●	●	●	●	○	○
5.0	6	43	17.0	24	2.50	0°			R0.05	MTEN 650175	●	●	●	●	○	○
5.0	6	43	17.0	24	2.50	0°			R0.15	MTEN 65017	●	●	●	●	○	○
5.0	6	48	25.0	29	2.50	0°			R0.05	MTEN 650255	●	●	●	●	○	○
5.0	6	48	25.0	29	2.50	0°			R0.15	MTEN 65025	●	●	●	●	○	○
5.0	6	53	32.0	34	2.50	0°			R0.05	MTEN 650325	●	●	●	●	○	○
5.0	6	53	32.0	34	2.50	0°			R0.15	MTEN 65032	●	●	●	●	○	○
5.0	6	61	40.0	42	2.50	0°			R0.05	MTEN 650405	●	●	●	●	○	○
5.0	6	61	40.0	42	2.50	0°			R0.15	MTEN 65040	●	●	●	●	○	○
6.0	6	35	12.0	16	2.95	0°			R0.05	MTEN 660125	●	●	●	●	○	○
6.0	6	35	12.0	16	2.95	0°			R0.20	MTEN 66012	●	●	●	●	○	○
6.0	6	43	20.0	24	2.95	0°			R0.05	MTEN 660205	●	●	●	●	○	○
6.0	6	43	20.0	24	2.95	0°			R0.20	MTEN 66020	●	●	●	●	○	○
6.0	6	53	30.0	34	2.95	0°			R0.05	MTEN 660305	●	●	●	●	○	○
6.0	6	53	30.0	34	2.95	0°			R0.20	MTEN 66030	●	●	●	●	○	○
6.0	6	61	40.0	42	2.95	0°			R0.05	MTEN 660405	●	●	●	●	○	○
6.0	6	61	40.0	42	2.95	0°			R0.20	MTEN 66040	●	●	●	●	○	○
6.0	6	71	50.0	52	2.95	0°			R0.05	MTEN 660505	●	●	●	●	○	○
6.0	6	71	50.0	52	2.95	0°			R0.20	MTEN 66050	●	●	●	●	○	○

Dimensions in mm



MTEF

Eckstahl

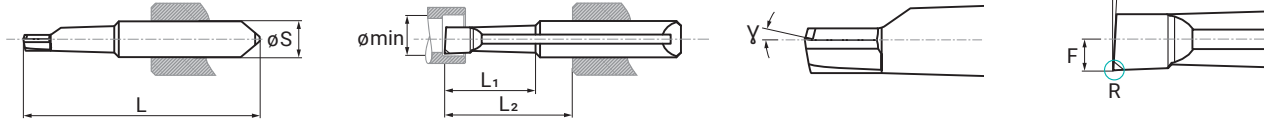
Spanwinkel (γ) = 12°

Für langspanende Werkstoffe



P **M** **N*** **S** *Messing mit Blei: MTEN verwenden
Messing ohne Blei: MTEP, MTEF verwenden

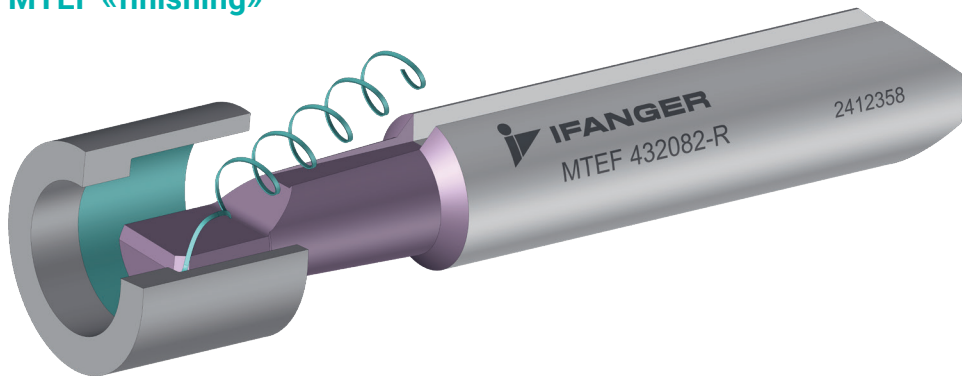
Richtwerte (V_c / f_s) Seite 10-11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



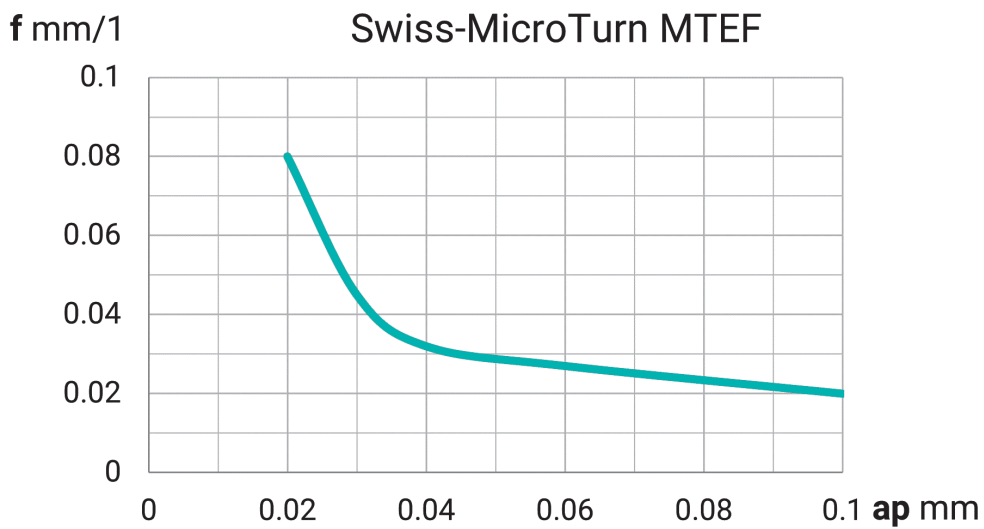
ømin	øS	L	L ₁	L ₂	F	γ	R			Ref. N°	Rotation		Coating			
							Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC
1.0	4	26	1.2	10	0.50	12°	0			MTEF 410020	●	○	●	●	●	○
1.0	4	26	3	10	0.50	12°	0			MTEF 410030	●	○	●	●	●	○
1.0	4	26	5	10	0.50	12°	0			MTEF 410050	●	○	●	●	●	○
1.2	4	26	2	10	0.60	12°	0			MTEF 412020	●	○	●	●	●	○
1.2	4	31	4	15	0.60	12°	0			MTEF 412040	●	○	●	●	●	○
1.2	4	31	7	15	0.60	12°	0			MTEF 412070	●	○	●	●	●	○
1.5	4	26	3	10	0.75	12°	0			MTEF 415030	●	○	●	●	●	○
1.5	4	31	5	15	0.75	12°	0			MTEF 415050	●	○	●	●	●	○
1.5	4	31	8	15	0.75	12°	0			MTEF 415080	●	○	●	●	●	○
1.8	4	26	4	10	0.90	12°	0			MTEF 418040	●	○	●	●	●	○
1.8	4	31	5	15	0.90	12°	0			MTEF 418050	●	○	●	●	●	○
1.8	4	31	9	15	0.90	12°	0			MTEF 418090	●	○	●	●	●	○
2.2	4	31	6	15	1.10	12°	0			MTEF 422060	●	○	●	●	●	○
2.2	4	31	10	15	1.10	12°	0			MTEF 422100	●	○	●	●	●	○
2.2	4	31	14	15	1.10	12°	0			MTEF 422140	●	○	●	●	●	○
2.5	4	31	6	15	1.25	12°		0.02 × 45°		MTEF 425062	●	○	●	●	●	○
2.5	4	31	10	15	1.25	12°		0.02 × 45°		MTEF 425102	●	○	●	●	●	○
2.5	4	31	14	15	1.25	12°		0.02 × 45°		MTEF 425142	●	○	●	●	●	○
3.2	4	31	8	15	1.60	12°		0.02 × 45°		MTEF 432082	●	○	●	●	●	○
3.2	4	31	12	15	1.60	12°		0.02 × 45°		MTEF 432122	●	○	●	●	●	○
3.2	4	36	17	20	1.60	12°		0.02 × 45°		MTEF 432172	●	○	●	●	●	○
4.0	4	31	10	15	1.95	12°		0.02 × 45°		MTEF 440102	●	○	●	●	●	○
4.0	4	31	14	15	1.95	12°		0.02 × 45°		MTEF 440142	●	○	●	●	●	○
4.0	4	36	19	20	1.95	12°		0.02 × 45°		MTEF 440192	●	○	●	●	●	○
5.0	6	35	12	16	2.50	12°		0.02 × 45°		MTEF 650122	●	○	●	●	●	○
5.0	6	43	17	24	2.50	12°		0.02 × 45°		MTEF 650172	●	○	●	●	●	○
5.0	6	48	25	29	2.50	12°		0.02 × 45°		MTEF 650252	●	○	●	●	●	○
6.0	6	35	12	16	2.95	12°		0.02 × 45°		MTEF 660122	●	○	●	●	●	○
6.0	6	43	20	24	2.95	12°		0.02 × 45°		MTEF 660202	●	○	●	●	●	○
6.0	6	53	30	34	2.95	12°		0.02 × 45°		MTEF 660302	●	○	●	●	●	○

Dimensions in mm

MTEF «finishing»

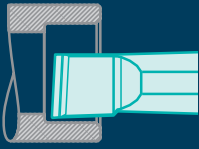


ifanger.com/chipbreaker



Für eine optimale Spanbildung die Werte für Vorschub (f_s) und Schnitttiefe (a_p) aus der Kurve entnehmen.

Die maximale Schnitttiefe (a_p) für MTEF liegt bei 0.15 mm.



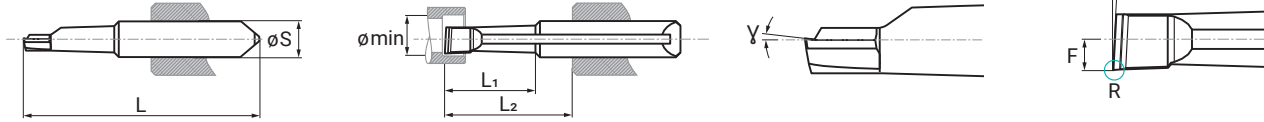
MTEP

Eckstahl
Spanwinkel (γ) = 12°
Für langspanende Werkstoffe



P **M** **N*** **S** *Messing mit Blei: MTEN verwenden
Messing ohne Blei: MTEP, MTEF verwenden

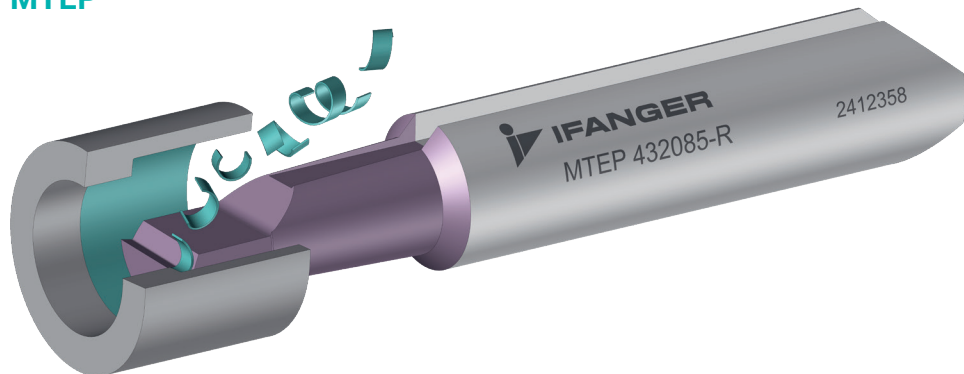
Richtwerte (V_c / f_z) Seite 10-11
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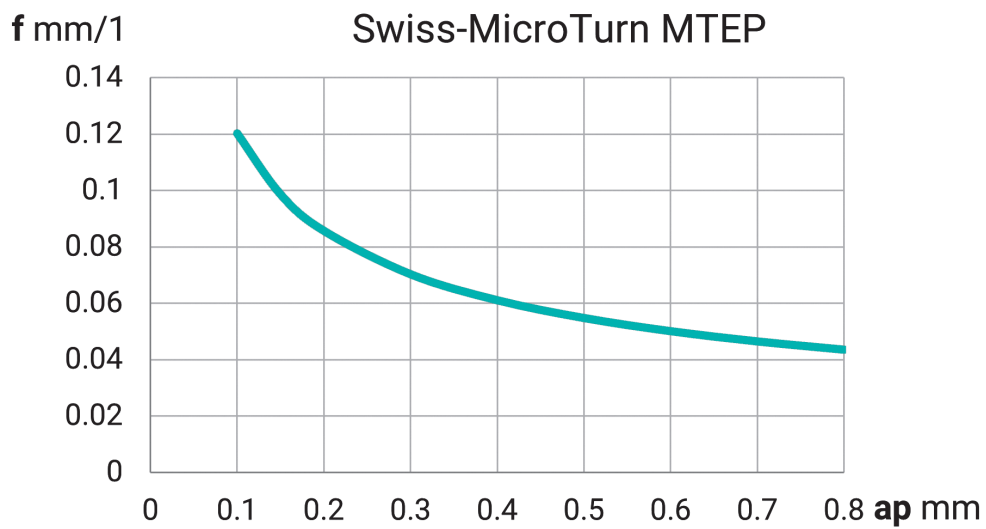
ømin	øS	L	L ₁	L ₂	F	γ	R			Ref. N°	Rotation		Coating			
							△	△	△		R	L	K10	TiAlN	DLC	SPEC
2.5	4	31	6	15	1.25	12°				R0.05	●	○	●	●	●	○
2.5	4	31	10	15	1.25	12°				R0.05	●	○	●	●	●	○
2.5	4	31	14	15	1.25	12°				R0.05	●	○	●	●	●	○
3.2	4	31	8	15	1.60	12°				R0.05	●	○	●	●	●	○
3.2	4	31	12	15	1.60	12°				R0.05	●	○	●	●	●	○
3.2	4	36	17	20	1.60	12°				R0.05	●	○	●	●	●	○
4.0	4	31	10	15	1.95	12°				R0.05	●	○	●	●	●	○
4.0	4	31	14	15	1.95	12°				R0.05	●	○	●	●	●	○
4.0	4	36	19	20	1.95	12°				R0.05	●	○	●	●	●	○
5.0	6	35	12	16	2.50	12°				R0.05	●	○	●	●	●	○
5.0	6	43	17	24	2.50	12°				R0.05	●	○	●	●	●	○
5.0	6	48	25	29	2.50	12°				R0.05	●	○	●	●	●	○
6.0	6	35	12	16	2.95	12°				R0.05	●	○	●	●	●	○
6.0	6	43	20	24	2.95	12°				R0.05	●	○	●	●	●	○
6.0	6	53	30	34	2.95	12°				R0.05	●	○	●	●	●	○

Dimensions in mm

MTEP

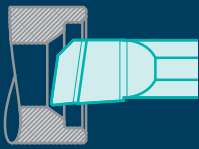


ifanger.com/chipbreaker



Für eine optimale Spanbildung die Werte für Vorschub (f_s) und Schnitttiefe (a_p) aus der Kurve entnehmen.

Die minimale Schnitttiefe (a_p) für MTEP liegt bei 0.1 mm.



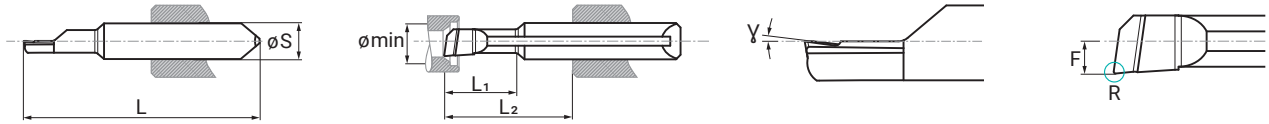
MTEE

Eckstahl freigestellt
Spanwinkel (γ) = 8°



P M N S O

Richtwerte (V_c / f_s) Seite 10-11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



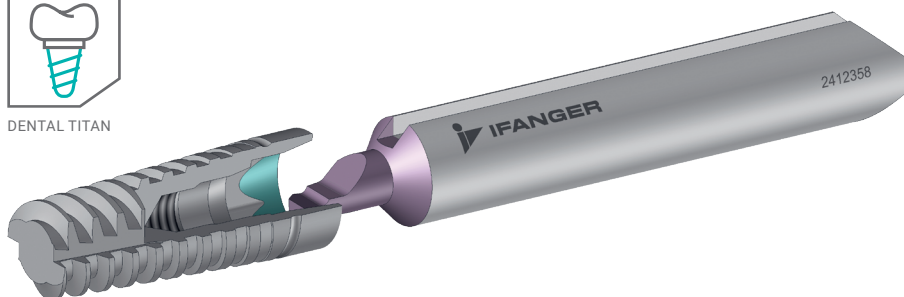
ϕ_{min}	ϕ_S	L	L ₁	L ₂	F	γ	R			Ref. N°	Rotation		Coating			
							Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC
1.8	4	31	5.0	15	0.95	8°			R0.05	MTEE 41805	●	○	●	●	○	○
2.3	4	31	7.0	15	1.20	8°			R0.08	MTEE 42307	●	○	●	●	○	○
2.5	4	26	4.0	10	1.25	12°			R0.05	MTEE 42504	●	○	●	●	○	○
2.8	4	31	8.5	15	1.45	8°			R0.10	MTEE 42808	●	○	●	●	○	○
3.3	4	31	10.5	15	1.70	8°			R0.10	MTEE 43310	●	○	●	●	○	○
3.8	4	31	12.5	15	1.95	8°			R0.10	MTEE 43812	●	○	●	●	○	○
4.7	6	43	16.0	24	2.45	8°			R0.15	MTEE 64716	●	○	●	●	○	○
5.7	6	43	19.5	24	2.95	8°			R0.15	MTEE 65719	●	○	●	●	○	○

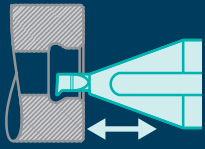
Dimensions in mm

Use case Ref. N° MTEE 42504



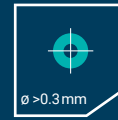
DENTAL TITAN





MTKN

Kopierstahl neutral 3° / 47°
Spanwinkel (γ) = 0°

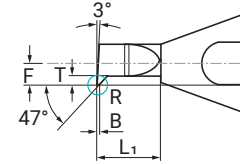
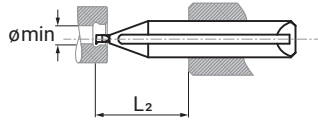
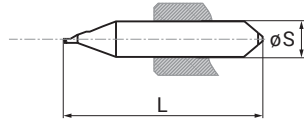


MICRO
BORING



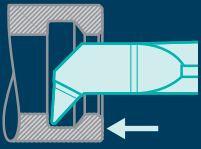
P M K N S O

Richtwerte (V_c / f_z) Seite 10-11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



ϕmin	ϕS	L	L_1	L_2	F	T	γ	B	R			Ref. N°	Rotation		Coating			
									Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC
0.3	4	26	0.6	10	0.15	0.05	0°	0.02	0			MTKN 40301	●	●	●	●	○	○
0.3	4	26	1.0	10	0.15	0.05	0°	0.02	0			MTKN 40302	●	●	●	●	○	○
0.4	4	26	0.8	10	0.20	0.07	0°	0.02	0			MTKN 40401	●	●	●	●	○	○
0.4	4	26	1.3	10	0.20	0.07	0°	0.02	0			MTKN 40402	●	●	●	●	○	○
0.5	4	26	1.0	10	0.25	0.10	0°	0.02	0			MTKN 40501	●	●	●	●	○	○
0.5	4	26	1.6	10	0.25	0.10	0°	0.02	0			MTKN 40502	●	●	●	●	○	○
0.6	4	26	1.2	10	0.30	0.12	0°	0.02	0			MTKN 40601	●	●	●	●	○	○
0.6	4	26	2.0	10	0.30	0.12	0°	0.02	0			MTKN 40602	●	●	●	●	○	○
0.7	4	26	1.2	10	0.35	0.15	0°	0.02	0			MTKN 40701	●	●	●	●	○	○
0.7	4	26	2.2	10	0.35	0.15	0°	0.02	0			MTKN 40702	●	●	●	●	○	○
0.8	4	26	1.4	10	0.40	0.17	0°	0.03	0			MTKN 40801	●	●	●	●	○	○
0.8	4	26	2.5	10	0.40	0.17	0°	0.03	0			MTKN 40802	●	●	●	●	○	○
1.0	4	26	1.5	10	0.50	0.20	0°	0.05	0			MTKN 41002	●	●	●	●	○	○
1.0	4	26	3.1	10	0.50	0.20	0°	0.05	0			MTKN 41003	●	●	●	●	○	○
1.2	4	26	2.0	10	0.60	0.30	0°			R0.03		MTKN 41202	●	●	●	●	○	○
1.2	4	26	3.7	10	0.60	0.30	0°			R0.03		MTKN 41204	●	●	●	●	○	○
1.5	4	26	3.0	10	0.75	0.40	0°			R0.03		MTKN 41503	●	●	●	●	○	○
1.5	4	26	4.6	10	0.75	0.40	0°			R0.03		MTKN 41505	●	●	●	●	○	○
1.8	4	26	4.0	10	0.90	0.50	0°			R0.03		MTKN 41804	●	●	●	●	○	○
1.8	4	26	5.5	10	0.90	0.50	0°			R0.03		MTKN 41806	●	●	●	●	○	○

Dimensions in mm



MTKH

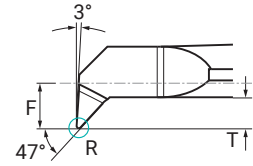
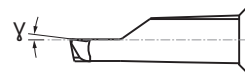
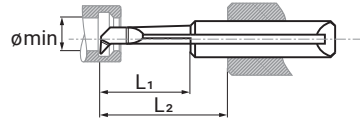
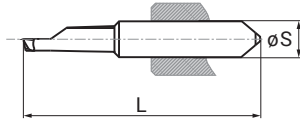
Kopierstahl 3° / 47°
Spanwinkel (γ) = 8°



P M N S O

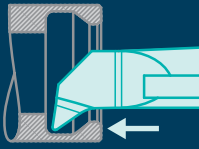
Richtwerte (V_c / f_s) Seite 10-11

Hartmetallsorten und Beschichtungen (Coatings) Seite 9



ϕ_{min}	ϕS	L	L ₁	L ₂	F	T	γ	R			Ref. N°	Rotation		Coating			
								Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC
2.0	4	31	4	15	1.00	0.50	8°			R0.05	MTKH 42004	●	●	●	●	○	○
2.5	4	31	6	15	1.25	0.50	8°			R0.05	MTKH 42506	●	●	●	●	○	○
2.5	4	31	10	15	1.25	0.50	8°			R0.05	MTKH 42510	●	●	●	●	○	○
3.2	4	31	8	15	1.60	0.60	8°			R0.08	MTKH 43208	●	●	●	●	○	○
3.2	4	31	12	15	1.60	0.60	8°			R0.08	MTKH 43212	●	●	●	●	○	○
3.2	4	36	17	20	1.60	0.60	8°			R0.08	MTKH 43217	●	●	●	●	○	○
4.0	4	31	10	15	1.95	0.80	8°			R0.12	MTKH 44010	●	●	●	●	○	○
4.0	4	31	14	15	1.95	0.80	8°			R0.12	MTKH 44014	●	●	●	●	○	○
4.0	4	36	19	20	1.95	0.80	8°			R0.12	MTKH 44019	●	●	●	●	○	○
4.0	6	48	25	29	1.95	0.80	8°			R0.12	MTKH 64025	●	●	●	●	○	○
4.0	6	53	30	34	1.95	0.80	8°			R0.12	MTKH 64030	●	●	●	●	○	○
5.0	6	35	12	16	2.50	1.20	8°			R0.15	MTKH 65012	●	●	●	●	○	○
5.0	6	43	17	24	2.50	1.20	8°			R0.15	MTKH 65017	●	●	●	●	○	○
5.0	6	48	25	29	2.50	1.20	8°			R0.15	MTKH 65025	●	●	●	●	○	○
5.0	6	53	32	34	2.50	1.20	8°			R0.15	MTKH 65032	●	●	●	●	○	○
5.0	6	61	40	42	2.50	1.20	8°			R0.15	MTKH 65040	●	●	●	●	○	○
6.0	6	35	12	16	2.95	1.45	8°			R0.20	MTKH 66012	●	●	●	●	○	○
6.0	6	43	20	24	2.95	1.45	8°			R0.20	MTKH 66020	●	●	●	●	○	○
6.0	6	53	30	34	2.95	1.45	8°			R0.20	MTKH 66030	●	●	●	●	○	○
6.0	6	61	40	42	2.95	1.45	8°			R0.20	MTKH 66040	●	●	●	●	○	○
6.0	6	71	50	52	2.95	1.45	8°			R0.20	MTKH 66050	●	●	●	●	○	○

Dimensions in mm



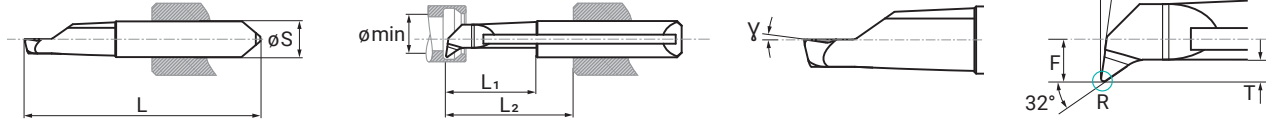
MTKO

Kopierstahl 8° / 32°
Spanwinkel (γ) = 8°



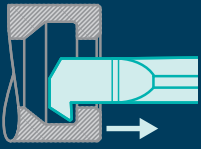
P M N S O

Richtwerte (V_c / f_z) Seite 10–11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



\varnothing_{min}	\varnothing_S	L	L ₁	L ₂	F	T	γ	R			Ref. N°	Rotation		Coating			
								Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC
2.0	4	31	4	15	1.0	0.50	8°			R0.05	MTKO 42004	●	●	●	●	○	○
2.5	4	31	6	15	1.3	0.60	8°			R0.05	MTKO 42506	●	●	●	●	○	○
2.5	4	31	10	15	1.3	0.60	8°			R0.05	MTKO 42510	●	●	●	●	○	○
3.2	4	31	8	15	1.6	0.80	8°			R0.08	MTKO 43208	●	●	●	●	○	○
3.2	4	31	12	15	1.6	0.80	8°			R0.08	MTKO 43212	●	●	●	●	○	○
3.2	4	36	17	20	1.6	0.80	8°			R0.08	MTKO 43217	●	●	●	●	○	○
4.0	4	31	10	15	2.0	0.80	8°			R0.12	MTKO 44010	●	●	●	●	○	○
4.0	4	31	14	15	2.0	0.80	8°			R0.12	MTKO 44014	●	●	●	●	○	○
4.0	4	36	19	20	2.0	0.80	8°			R0.12	MTKO 44019	●	●	●	●	○	○
5.0	6	48	25	29	2.0	0.80	8°			R0.12	MTKO 64025	●	●	●	●	○	○
5.0	6	53	30	34	2.0	0.80	8°			R0.12	MTKO 64030	●	●	●	●	○	○
5.0	6	35	12	16	2.5	1.20	8°			R0.15	MTKO 65012	●	●	●	●	○	○
5.0	6	43	17	24	2.5	1.20	8°			R0.15	MTKO 65017	●	●	●	●	○	○
5.0	6	48	25	29	2.5	1.20	8°			R0.15	MTKO 65025	●	●	●	●	○	○
5.0	6	53	32	34	2.5	1.20	8°			R0.15	MTKO 65032	●	●	●	●	○	○
5.0	6	61	40	42	2.5	1.20	8°			R0.15	MTKO 65040	●	●	●	●	○	○
6.0	6	35	12	16	3.0	1.45	8°			R0.20	MTKO 66012	●	●	●	●	○	○
6.0	6	43	20	24	3.0	1.45	8°			R0.20	MTKO 66020	●	●	●	●	○	○
6.0	6	53	30	34	3.0	1.45	8°			R0.20	MTKO 66030	●	●	●	●	○	○
6.0	6	61	40	42	3.0	1.45	8°			R0.20	MTKO 66040	●	●	●	●	○	○
6.0	6	71	50	52	3.0	1.45	8°			R0.20	MTKO 66050	●	●	●	●	○	○

Dimensions in mm



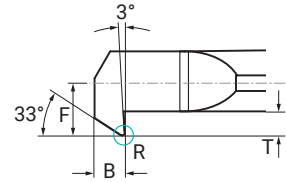
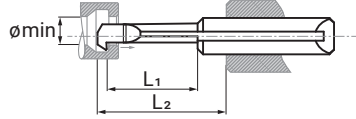
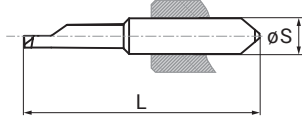
MTKR

Rückwärts-Kopierstahl
Spanwinkel (γ) = 0°



P M K N S O

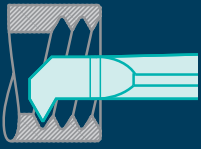
Richtwerte (V_c / f_s) Seite 10-11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



ϕ_{min}	ϕS	L	L ₁	L ₂	T	F	γ	B	R			Ref. N°	Rotation		Coating			
									Δ	Δ	Δ		R	L	K10	TiAlN	DLC	SPEC
2.0	4	31	6	15	0.5	1.0	0°	0.6			R0.05	MTKR 42006	●	○	●	●	○	○
2.5	4	31	10	15	0.6	1.2	0°	0.6			R0.05	MTKR 42510	●	○	●	●	○	○
3.2	4	31	12	15	0.8	1.5	0°	1.0			R0.08	MTKR 43212	●	○	●	●	○	○
4.0	4	36	17	20	1.0	1.9	0°	1.2			R0.12	MTKR 44017	●	○	●	●	○	○
5.0	6	48	22	25	1.2	2.4	0°	1.5			R0.15	MTKR 65022	●	○	●	●	○	○
6.0	6	53	25	32	1.5	2.9	0°	1.8			R0.20	MTKR 66025	●	○	●	●	○	○

Dimensions in mm



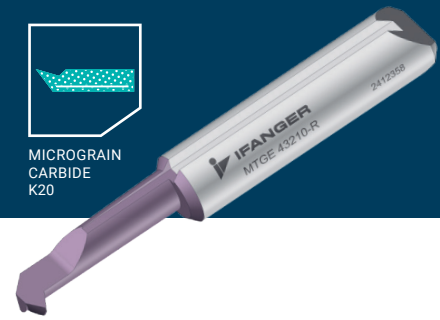


MTGE

Gewindestahl 60°

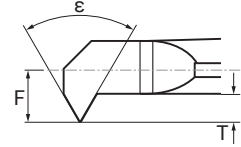
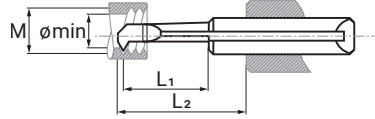
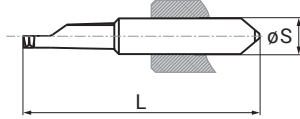


MICROGRAIN
CARBIDE
K20



P M K N S O

Richtwerte (V_c) Seite 10
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



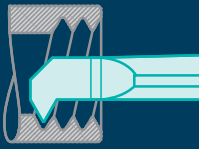
ømin	øS	L	L ₁	L ₂	F	ε	M	P	T	Ref. N°	Rotation		Coating			
											R	L	K20	TiAlN	DLC	SPEC
1.2	4	26	2.3	10	0.6	60°	M1.6	0.20-0.40	0.30	MTGE 41203	●	●	●	●	○	○
1.6	4	26	3.7	10	0.8	60°	M2	0.20-0.50	0.40	MTGE 41604	●	●	●	●	○	○
2.2	4	31	5.1	15	1.1	60°	M3	0.20-0.50	0.60	MTGE 42206	●	●	●	●	○	○
3.2	4	31	7.5	15	1.6	60°	M4	0.50-0.80	1.00	MTGE 43208	●	●	●	●	○	○
4.0	4	31	9.4	15	2.0	60°	M5	0.75-1.00	0.95	MTGE 44010	●	●	●	●	○	○
4.0	4	31	13.4	15	2.0	60°	M5	0.75-1.00	0.95	MTGE 44014	●	●	●	●	○	○
5.0	6	35	11.1	16	2.5	60°	M6	0.75-1.25	1.50	MTGE 65012	●	●	●	●	○	○
5.0	6	43	16.1	24	2.5	60°	M6	0.75-1.25	1.50	MTGE 65017	●	●	●	●	○	○
6.0	6	35	11.0	16	3.0	60°	M8	1.00-1.75	1.50	MTGE 66012	●	●	●	●	○	○
6.0	6	43	19.0	24	3.0	60°	M8	1.00-1.75	1.50	MTGE 66020	●	●	●	●	○	○
6.0	6	53	29.0	34	3.0	60°	M8	1.00-1.75	1.50	MTGE 66030	●	●	●	●	○	○

Dimensions in mm

Die Anzahl der Schnitte hängt stark vom zu bearbeitenden Werkstoff, der Spannung des Werkstücks und der gewünschten Güteklasse des zu schneidenden Gewindes ab.

Der letzte Schnitt sollte mit einer Zustellung (a_p) von mindestens 0.04 mm erfolgen.

Die Anzahl der Schnitte (N) hängt von der ISO-Werkstoffklasse ab																	
ISO	P1	P2	P3	P4	M1	M2	K1	K2	K3	N1	N2	N4	S1	S2	S3	S4	01-03
N	6-8	6-8	7-9	7-9	7-9	8-10	7-9	8-10	7-9	6-8	6-8	6-8	7-9	7-9	7-9	7-9	Auf Anfrage



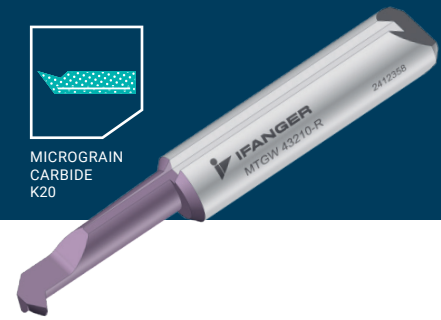
MTGW

Gewindestahl 55°

Für Rohrgewinde / Whitworth-Gewinde

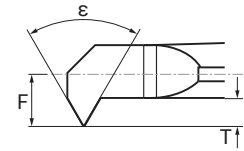
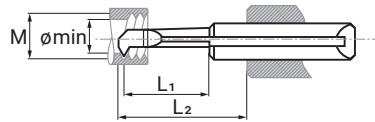
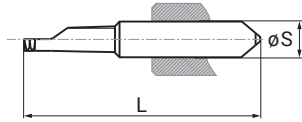


MICROGRAIN
CARBIDE
K20



P M K N S O

Richtwerte (Vc) Seite 10
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



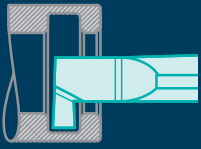
ømin	øS	L	L ₁	L ₂	F	ε	M	P	T	Ref. N°	Rotation		Coating			
											R	L	K20	TiAlN	DLC	SPEC
4.0	4	31	9.4	15	1.95	55°	W 7/32"	20-28	1.00	MTGW 44010	●	○	●	●	○	○
5.0	6	35	11.1	16	2.50	55°	W 5/16"	18-26	1.50	MTGW 65012	●	○	●	●	○	○
6.0	6	43	19.0	24	2.95	55°	W 3/8"	16-22	1.50	MTGW 66020	●	○	●	●	○	○

Dimensions in mm

Die Anzahl der Schnitte hängt stark vom zu bearbeitenden Werkstoff, der Spannung des Werkstücks und der gewünschten Güteklasse des zu schneidenden Gewindes ab.

Der letzte Schnitt sollte mit einer Zustellung (a_p) von mindestens 0.04 mm erfolgen.

Die Anzahl der Schnitte (N) hängt von der ISO-Werkstoffklasse ab																	
ISO	P1	P2	P3	P4	M1	M2	K1	K2	K3	N1	N2	N4	S1	S2	S3	S4	O1-O3
N	9-12	8-10	9-12	9-12	9-12	12-15	11-14	12-15	11-14	8-10	6-8	9-12	10-14	10-14	10-14	10-14	Auf Anfrage



MTNU

Nutenstahl
Spanwinkel (γ) = 12°

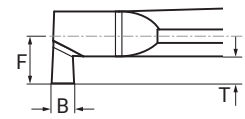
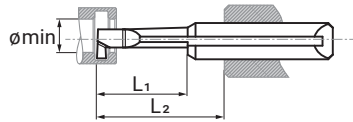
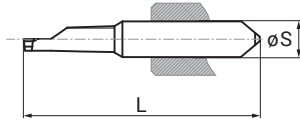


ULTRA-SHARP



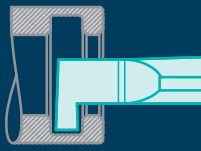
P M S O

Richtwerte (V_c / f_s) Seite 10-11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



ϕ_{min}	ϕS	L	L ₁	L ₂	F	T	B	γ	Ref. N°	Rotation		Coating			
										R	L	K10	TiAlN	DLC	SPEC
2.0	4	31	6	15	1.00	0.5	0.6	12°	MTNU 42006	●	●	●	●	○	○
2.5	4	31	8	15	1.25	0.6	0.8	12°	MTNU 42508	●	●	●	●	○	○
3.2	4	31	8	15	1.60	0.8	1.0	12°	MTNU 43208	●	●	●	●	○	○
3.2	4	31	12	15	1.60	0.8	1.0	12°	MTNU 43212	●	●	●	●	○	○
3.2	4	36	17	20	1.60	0.8	1.0	12°	MTNU 43217	●	●	●	●	○	○
4.0	4	31	10	15	1.95	0.8	1.0	12°	MTNU 44010	●	●	●	●	○	○
4.0	4	31	14	15	1.95	0.8	1.0	12°	MTNU 44014	●	●	●	●	○	○
4.0	4	36	19	20	1.95	0.8	1.0	12°	MTNU 44019	●	●	●	●	○	○
4.0	6	48	25	29	1.95	0.8	1.0	12°	MTNU 64025	●	●	●	●	○	○
4.0	6	53	30	34	1.95	0.8	1.0	12°	MTNU 64030	●	●	●	●	○	○
5.0	6	35	12	16	2.50	1.5	1.2	12°	MTNU 65012	●	●	●	●	○	○
5.0	6	43	17	24	2.50	1.5	1.2	12°	MTNU 65017	●	●	●	●	○	○
5.0	6	48	25	29	2.50	1.5	1.2	12°	MTNU 65025	●	●	●	●	○	○
5.0	6	53	32	34	2.50	1.5	1.2	12°	MTNU 65032	●	●	●	●	○	○
5.0	6	61	40	42	2.50	1.5	1.2	12°	MTNU 65040	●	●	●	●	○	○
6.0	6	35	12	16	2.95	2.0	1.5	12°	MTNU 66012	●	●	●	●	○	○
6.0	6	43	20	24	2.95	2.0	2.0	12°	MTNU 66020	●	●	●	●	○	○
6.0	6	53	30	34	2.95	2.0	2.0	12°	MTNU 66030	●	●	●	●	○	○
6.0	6	61	40	42	2.95	2.0	2.0	12°	MTNU 66040	●	●	●	●	○	○

Dimensions in mm



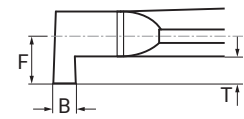
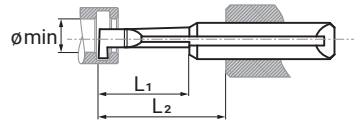
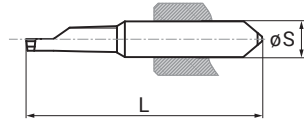
MTNN

Nutenstahl neutral
Spanwinkel (γ) = 0°



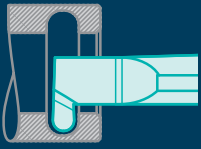
P M K N S O

Richtwerte (V_c / f_n) Seite 10-11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



ømin	øS	L	L ₁	L ₂	F	T	B	γ	Ref. N°	Rotation		Coating			
										R	L	K10	TiAlN	DLC	SPEC
0.3	4	26	0.6	10	0.15	0.05	0.10	0°	MTNN 40301	●	●	●	●	○	○
0.4	4	26	0.8	10	0.20	0.07	0.10	0°	MTNN 40401	●	●	●	●	○	○
0.5	4	26	1.0	10	0.25	0.10	0.15	0°	MTNN 40501	●	●	●	●	○	○
0.7	4	26	1.2	10	0.35	0.15	0.20	0°	MTNN 40701	●	●	●	●	○	○
0.8	4	26	1.4	10	0.30	0.17	0.25	0°	MTNN 40801	●	●	●	●	○	○
1.0	4	26	1.5	10	0.50	0.20	0.30	0°	MTNN 41002	●	●	●	●	○	○
1.2	4	26	2.0	10	0.60	0.30	0.40	0°	MTNN 41202	●	●	●	●	○	○
1.5	4	26	3.0	10	0.75	0.40	0.40	0°	MTNN 41503	●	●	●	●	○	○
1.8	4	26	4.0	10	0.90	0.50	0.50	0°	MTNN 41804	●	●	●	●	○	○
2.0	4	31	6.0	15	1.00	0.50	0.60	0°	MTNN 42006	●	●	●	●	○	○
2.5	4	31	8.0	15	1.25	0.60	0.80	0°	MTNN 42508	●	●	●	●	○	○
3.2	4	31	8.0	15	1.60	0.80	1.00	0°	MTNN 43208	●	●	●	●	○	○
3.2	4	31	12.0	15	1.60	0.80	1.00	0°	MTNN 43212	●	●	●	●	○	○
3.2	4	36	17.0	20	1.60	0.80	1.00	0°	MTNN 43217	●	●	●	●	○	○
4.0	4	31	10.0	15	1.95	0.80	1.00	0°	MTNN 44010	●	●	●	●	○	○
4.0	4	31	14.0	15	1.95	0.80	1.00	0°	MTNN 44014	●	●	●	●	○	○
4.0	4	36	19.0	20	1.95	0.80	1.00	0°	MTNN 44019	●	●	●	●	○	○
4.0	6	48	25.0	29	1.95	0.80	1.00	0°	MTNN 64025	●	●	●	●	○	○
4.0	6	53	30.0	34	1.95	0.80	1.00	0°	MTNN 64030	●	●	●	●	○	○
5.0	6	35	12.0	16	2.50	1.50	1.20	0°	MTNN 65012	●	●	●	●	○	○
5.0	6	43	17.0	24	2.50	1.50	1.20	0°	MTNN 65017	●	●	●	●	○	○
5.0	6	48	25.0	29	2.50	1.50	1.20	0°	MTNN 65025	●	●	●	●	○	○
5.0	6	53	32.0	34	2.50	1.50	1.20	0°	MTNN 65032	●	●	●	●	○	○
5.0	6	61	40.0	42	2.50	1.50	1.20	0°	MTNN 65040	●	●	●	●	○	○
6.0	6	35	12.0	16	2.95	2.00	1.50	0°	MTNN 66012	●	●	●	●	○	○
6.0	6	43	20.0	24	2.95	2.00	2.00	0°	MTNN 66020	●	●	●	●	○	○
6.0	6	53	30.0	34	2.95	2.00	2.00	0°	MTNN 66030	●	●	●	●	○	○
6.0	6	61	40.0	42	2.95	2.00	2.00	0°	MTNN 66040	●	●	●	●	○	○

Dimensions in mm



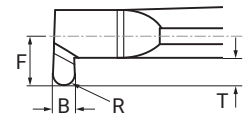
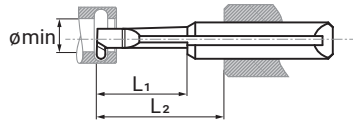
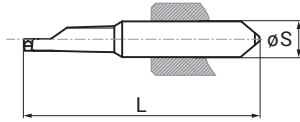
MTNR

Nutenstahl mit Vollradius
Spanwinkel (γ) = 6°



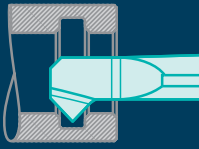
P M N S O

Richtwerte (V_c / f_s) Seite 10-11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



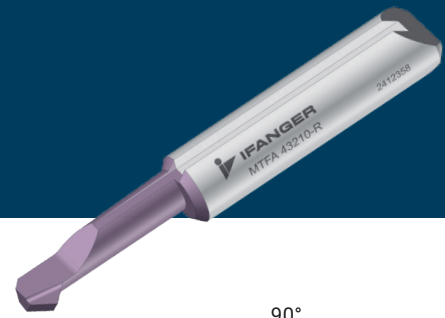
Ømin	ØS	L	L ₁	L ₂	F	T	γ	B	R	Ref. N°	Rotation		Coating			
											R	L	K10	TiAlN	DLC	SPEC
2.5	4	31	6	15	1.25	0.6	6°	0.8	0.40	MTNR 425064	●	●	●	●	○	○
3.2	4	31	8	15	1.60	0.8	6°	1.0	0.50	MTNR 432085	●	●	●	●	○	○
3.2	4	31	12	15	1.60	0.8	6°	1.0	0.50	MTNR 432125	●	●	●	●	○	○
4.0	4	31	10	15	1.95	0.8	6°	1.0	0.50	MTNR 440105	●	●	●	●	○	○
4.0	4	31	14	15	1.95	0.8	6°	1.0	0.50	MTNR 440145	●	●	●	●	○	○
4.0	4	36	19	20	1.95	0.8	6°	1.0	0.50	MTNR 440195	●	●	●	●	○	○
5.0	6	35	12	16	2.50	1.5	6°	1.0	0.50	MTNR 650125	●	●	●	●	○	○
5.0	6	35	12	16	2.50	1.5	6°	1.5	0.75	MTNR 650127	●	●	●	●	○	○
5.0	6	35	12	16	2.50	1.5	6°	2.0	1.00	MTNR 650129	●	●	●	●	○	○
5.0	6	43	17	24	2.50	1.5	6°	1.0	0.50	MTNR 650175	●	●	●	●	○	○
5.0	6	43	17	24	2.50	1.5	6°	1.5	0.75	MTNR 650177	●	●	●	●	○	○
5.0	6	43	17	24	2.50	1.5	6°	2.0	1.00	MTNR 650179	●	●	●	●	○	○
6.0	6	43	20	24	2.95	2.0	6°	1.0	0.50	MTNR 660205	●	●	●	●	○	○
6.0	6	43	20	24	2.95	2.0	6°	1.5	0.75	MTNR 660207	●	●	●	●	○	○
6.0	6	43	20	24	2.95	2.0	6°	2.0	1.00	MTNR 660209	●	●	●	●	○	○

Dimensions in mm



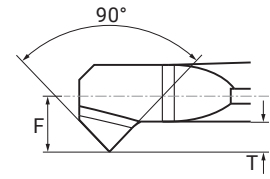
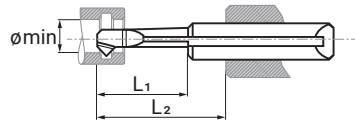
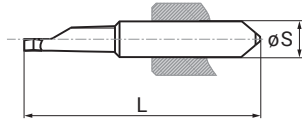
MTFA

Facettierstahl
Spanwinkel (γ) = 8°



P M K N S O

Richtwerte (V_c / f_n) Seite 10–11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9



ømin	øS	L	L ₁	L ₂	F	T	γ	Ref. N°	Rotation		Coating			
									R	L	K10	TiAlN	DLC	SPEC
2.0	4	31	5.4	15	1.00	0.50	8°	MTFA 42006	●	●	●	●	○	○
2.5	4	31	7.3	15	1.25	0.60	8°	MTFA 42508	●	●	●	●	○	○
3.2	4	31	11.0	15	1.60	0.80	8°	MTFA 43212	●	●	●	●	○	○
4.0	4	31	13.0	15	1.95	0.80	8°	MTFA 44014	●	●	●	●	○	○
4.0	4	36	18.0	20	1.95	0.80	8°	MTFA 44019	●	●	●	●	○	○
5.0	6	43	15.4	24	2.50	1.45	8°	MTFA 65017	●	●	●	●	○	○
6.0	6	43	18.4	24	2.95	1.45	8°	MTFA 66020	●	●	●	●	○	○
6.0	6	53	28.4	34	2.95	1.45	8°	MTFA 66030	●	●	●	●	○	○

Dimensions in mm

Zum Kopierdrehen Kopierstahl MTKN, MTKH, MTKO oder MTKR verwenden.



MTNX

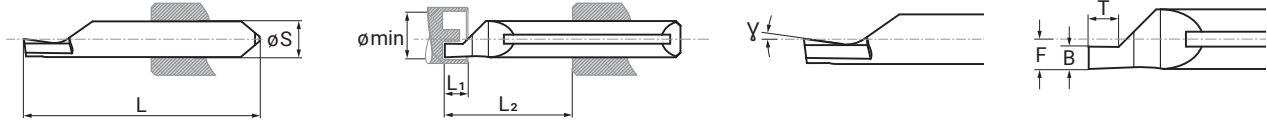
Axialstechstahl
Spanwinkel (γ) = 6–8°
Für Axialnuten



P M K N S O

Richtwerte (V_c / f_s) Seite 10–11

Hartmetallsorten und Beschichtungen (Coatings) Seite 9



ømin	øS	L	L ₁	L ₂	F	T	B	γ	Ref. N°	Rotation		Coating			
										R	L	K10	TiAlN	DLC	SPEC
4.0	4	26	3	10	1.95	1.2	0.7	6°	MTNX 40710	●	●	●	●	○	○
6.0	4	26	5	10	1.95	1.5	1.0	8°	MTNX 41015	●	●	●	●	○	○
6.0	4	26	7	10	1.95	2.0	1.5	8°	MTNX 41520	●	●	●	●	○	○
8.0	6	35	8	16	2.95	2.5	1.5	8°	MTNX 61525	●	●	●	●	○	○
8.0	6	35	10	16	2.95	3.0	2.0	8°	MTNX 62030	●	●	●	●	○	○

Dimensions in mm



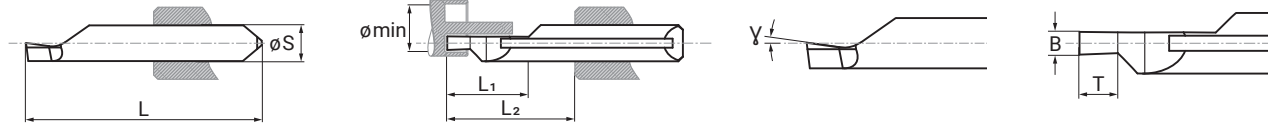
MTNY

Axialstechstahl
Spanwinkel (γ) = 6–8°
Für Axialnuten mit Bund



P M K N S O

Richtwerte (V_c / f_z) Seite 10–11
Hartmetallsorten und Beschichtungen (Coatings) Seite 9

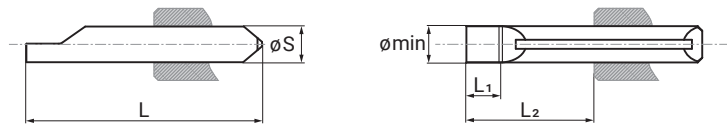


ømin	øS	L	L ₁	L ₂	T	B	γ	Ref. N°	Rotation		Coating			
									R	L	K10	TiAlN	DLC	SPEC
4.0	4	26	6	10	1.20	0.70	6°	MTNY 40710	●	●	●	●	○	○
6.0	4	31	8	15	1.50	1.00	8°	MTNY 41015	●	●	●	●	○	○
6.0	4	31	12	15	2.00	1.50	8°	MTNY 41520	●	●	●	●	○	○
8.0	6	35	14	16	2.50	1.50	8°	MTNY 61525	●	●	●	●	○	○
8.0	6	43	20	24	3.00	2.00	8°	MTNY 62030	●	●	●	●	○	○

Dimensions in mm

MTRO

Swiss-MicroTurn Rohling
Spanwinkel (γ) = 0°
Zur Eigenfertigung der Schneidengeometrie



øS	L	L ₁	L ₂	γ	Ref. N°	Rotation		Coating			
						R	L	K10	TiAlN	DLC	SPEC
4	26	4	10	0°	MTRO 40010			●			
4	31	4	15	0°	MTRO 40015			●			
6	43	6	23	0°	MTRO 60023			●			

Dimensions in mm

MTHA

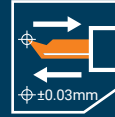
Halter mit Rundschaft und Spannfläche (F)



HIGH VOLUME COOLING



QUICK CHANGE

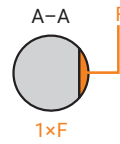
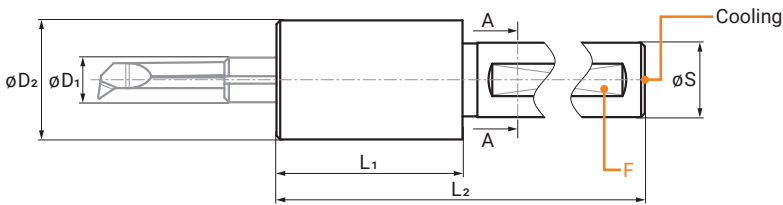


REPEATED POSITIONING ACCURACY $\pm 0.03\text{mm}$

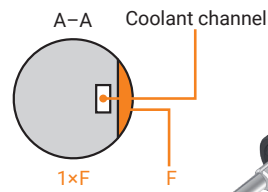
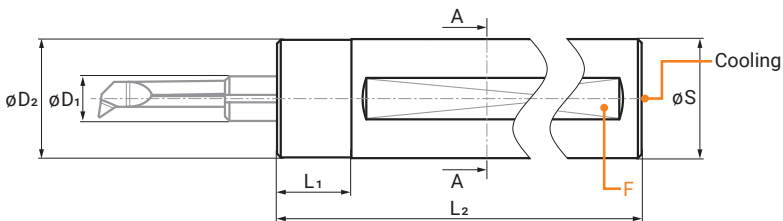


VIBRATION ABSORBING TOOL CLAMPING

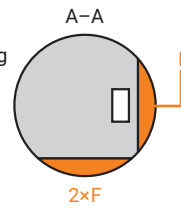
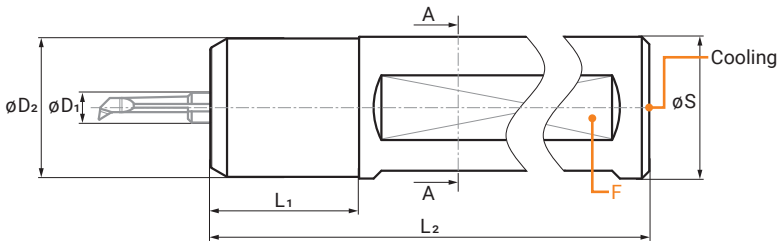
N° 1



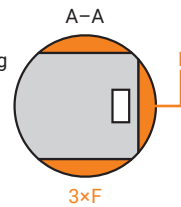
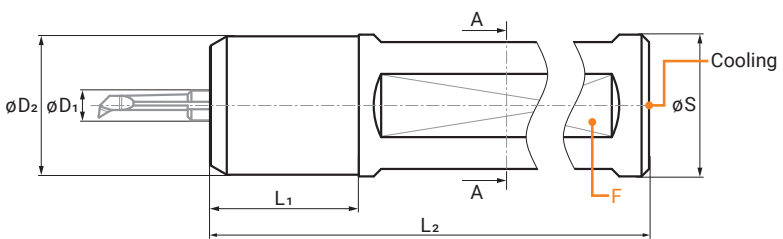
N° 2



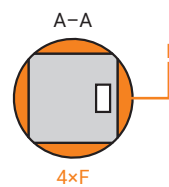
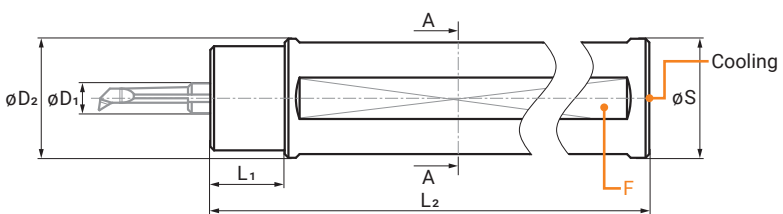
N° 3



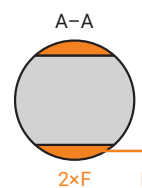
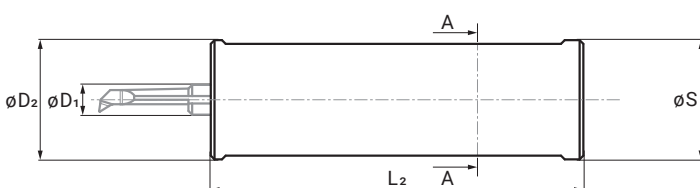
N° 4



N° 5



N° 6



N°	øS	øD ₁	øD ₂	L ₁	L ₂	F	Cooling	Ref. N°
1	7	4	14.0	25	49	1x	-	MTHA 07049/4
1	8	4	14.0	21	60	1x	-	MTHA 08060/4
1	10	4	14.0	21	60	1x	-	MTHA 10060/4
1	10	6	16.0	25	60	1x	-	MTHA 10060/6
1	12	4	14.0	10	50	1x	-	MTHA 12050/4
1	12	4	14.0	10	90	1x	G1/8"	MTHA 12090/4
1	12	6	16.0	25	60	1x	-	MTHA 12060/6
6	5/8"	4	5/8"		50	2x	-	MTHA 15050/4
2	16	4	14.0	10	50	1x	G1/8"	MTHA 16050/4
5	16	4	14.0	10	52	4x	G1/8"	MTHA 16052/4
2	16	4	14.0	10	90	1x	G1/8"	MTHA 16090/4
2	16	6	15.8	10	60	1x	G1/8"	MTHA 16060/6
2	16	6	15.8	10	90	1x	G1/8"	MTHA 16090/6
3	3/4"	4	18.6	20	70	2x	G1/8"	MTHA 19070/4
3	3/4"	6	18.6	20	70	2x	G1/8"	MTHA 19070/6
4	3/4"	4	18.6	20	90	3x	G1/8"	MTHA 19090/4
4	3/4"	6	18.6	20	90	3x	G1/8"	MTHA 19090/6
3	3/4"	4	18.6	20	145	2x	G1/8"	MTHA 19145/4
3	3/4"	6	18.6	20	145	2x	G1/8"	MTHA 19145/6
3	20	4	19.6	20	70	2x	G1/8"	MTHA 20070/4
3	20	6	19.6	20	70	2x	G1/8"	MTHA 20070/6
3	20	4	19.6	20	160	2x	G1/8"	MTHA 20160/4
3	20	6	19.6	20	160	2x	G1/8"	MTHA 20160/6
5	22	4	21.6	20	90	4x	G1/8"	MTHA 22090/4
5	22	6	21.6	20	90	4x	G1/8"	MTHA 22090/6
3	22	4	21.6	20	130	2x	G1/8"	MTHA 22130/4
3	22	6	21.6	20	130	2x	G1/8"	MTHA 22130/6
2	25	4	24.6	20	80	1x	G1/8"	MTHA 25080/4
2	25	6	24.6	20	80	1x	G1/8"	MTHA 25080/6
2	25	4	24.6	20	100	1x	G1/8"	MTHA 25100/4
2	25	6	24.6	20	100	1x	G1/8"	MTHA 25100/6
5	25	4	24.6	20	170	4x	G1/8"	MTHA 25170/4
5	25	6	24.6	20	170	4x	G1/8"	MTHA 25170/6
3	1"	4	25.0	20	70	2x	G1/8"	MTHA 26070/4
3	1"	6	25.0	20	70	2x	G1/8"	MTHA 26070/6
3	1"	4	25.0	20	145	2x	G1/8"	MTHA 26145/4
3	1"	6	25.0	20	145	2x	G1/8"	MTHA 26145/6
3	28	4	27.6	20	100	2x	M12x1.5	MTHA 28100/4
3	28	6	27.6	23	100	2x	M12x1.5	MTHA 28100/6
4	32	4	31.6	20	80	3x	G1/8"	MTHA 32080/4
4	32	6	31.6	23	80	3x	G1/8"	MTHA 32080/6
5	32	4	22.0	25	135	4x	G1/8"	MTHA 32135/4
5	32	6	22.0	25	135	4x	G1/8"	MTHA 32135/6

Dimensions in mm
Spare parts, see page 54

MTHA

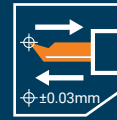
Halter mit Rundschaft
ohne Spannflächen



HIGH VOLUME
COOLING



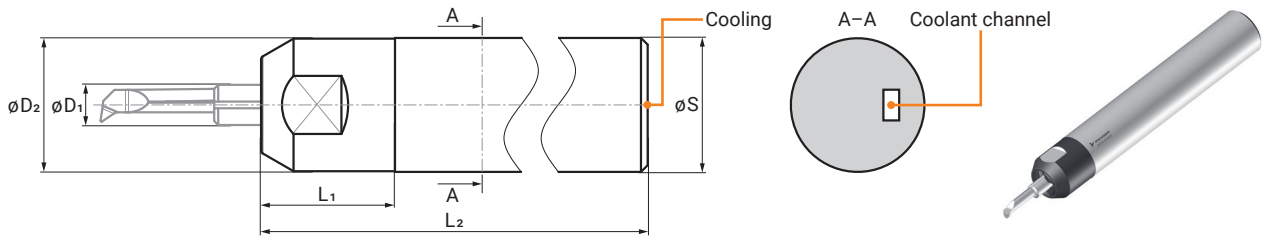
QUICK CHANGE



REPEATED
POSITIONING
ACCURACY
 $\pm 0.03\text{mm}$



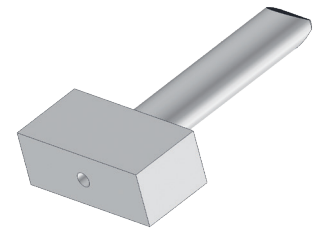
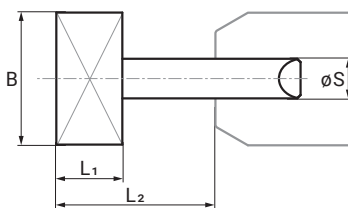
VIBRATION
ABSORBING
TOOL CLAMPING



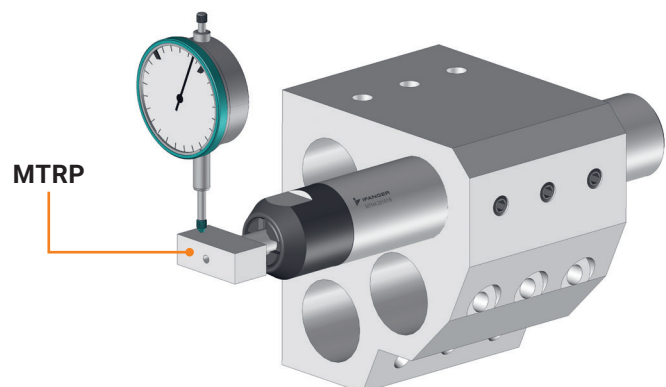
$\varnothing S$	$\varnothing D_1$	$\varnothing D_2$	L_1	L_2	Cooling	Ref. N°
20	4	19.6	20	161	G1/8"	MTHA 20161/4
20	6	19.6	20	162	G1/8"	MTHA 20161/6
25	4	24.6	20	171	G1/8"	MTHA 25171/4
25	6	24.6	20	171	G1/8"	MTHA 25171/6

MTRP

Richtplatte für MTHA



$\varnothing S$	B	L_1	L_2	Ref. N°
4	20	10	17	MTRP 00004
6	20	10	18	MTRP 00006



MTHA/SK

Halter mit Rundschaft
mit seitlichem Kühlmittelanschluss



HIGH VOLUME
COOLING



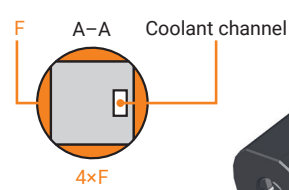
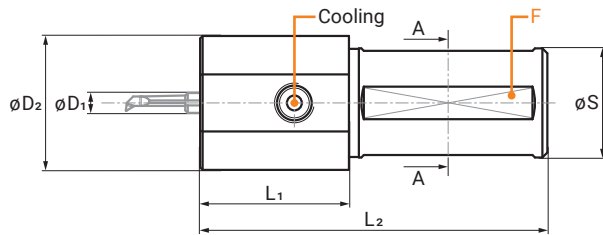
QUICK CHANGE
5°



REPEATED
POSITIONING
ACCURACY
±0.03mm

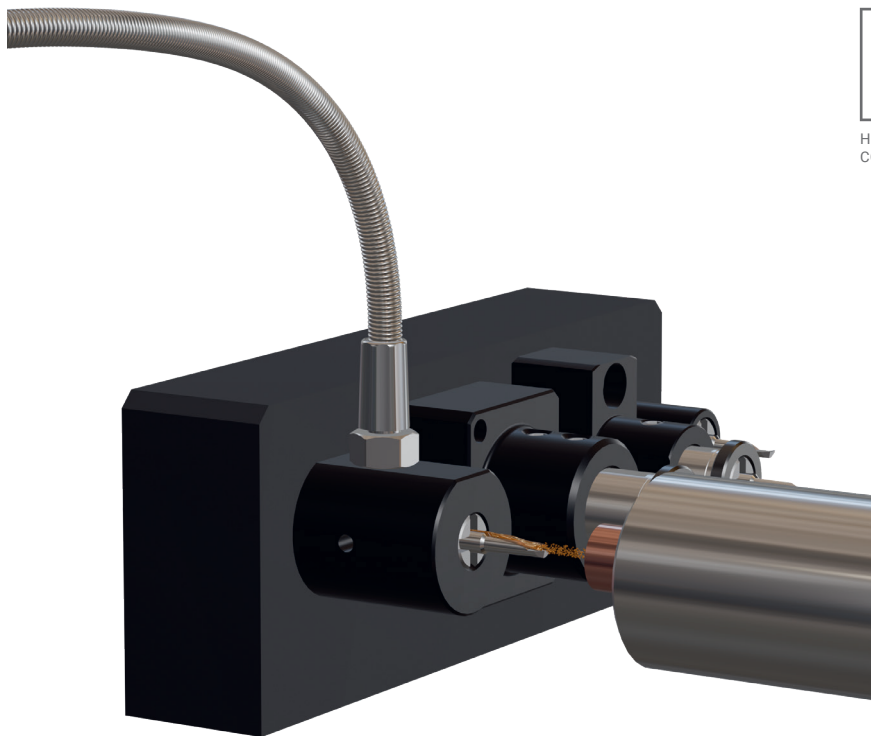


VIBRATION
ABSORBING
TOOL CLAMPING



øS	øD1	øD2	L1	L2	Cooling	Ref. N°
3/4"	4	27	30	70	M8x1	MTHA 19070/4SK
3/4"	6	27	30	70	M8x1	MTHA 19070/6SK
22	4	27	30	70	M8x1	MTHA 22070/4SK
22	6	27	30	70	M8x1	MTHA 22070/6SK

Dimensions in mm
Spare parts, see page 54



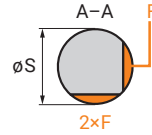
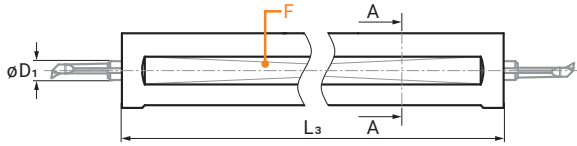
HIGH VOLUME
COOLING



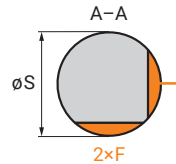
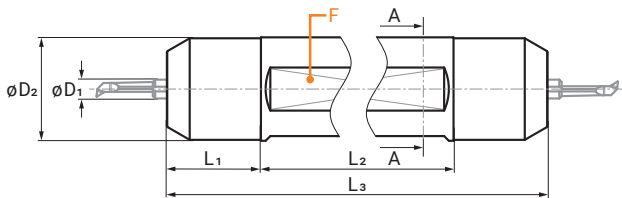
MTHC

Doppelhalter mit Rundschaft
für Swiss-MicroTurn Werkzeuge

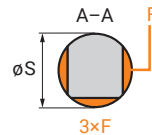
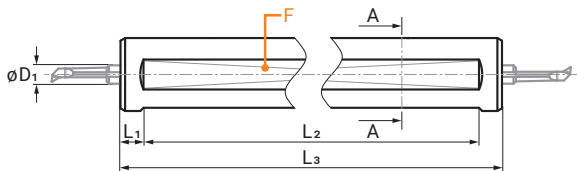
N° 1



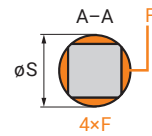
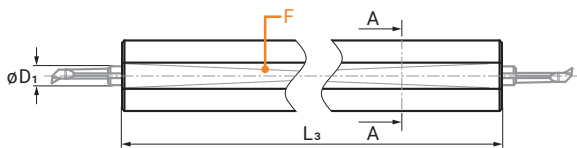
N° 2



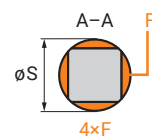
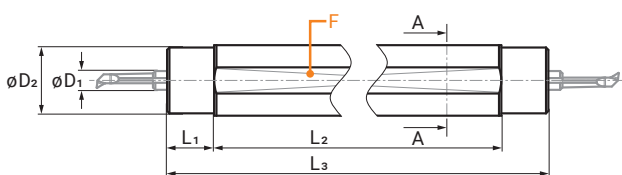
N° 3



N° 4



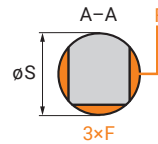
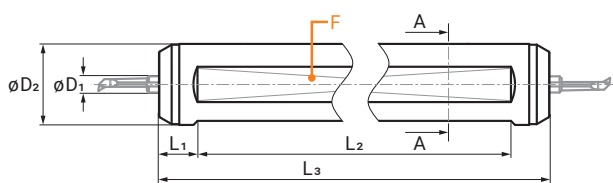
N° 5



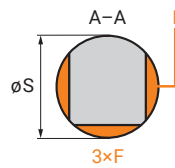
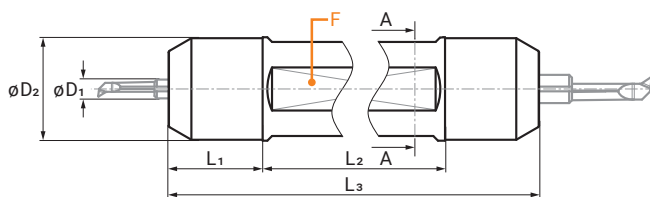
N°	øS	øD ₁	øD ₂	øD ₃	L ₁	L ₂	L ₃	F	Ref. N°
1	5/8"	4	-	4	-	-	48	2x	MTHC 15048/4
3	5/8"	4	-	4	5	45	55	3x	MTHC 15055/4
3	5/8"	4	-	4	5	55	65	3x	MTHC 15065/4
4	16	4	-	4	-	-	70	4x	MTHC 16070/4
5	16	4	14.0	4	10	90	110	4x	MTHC 16110/4
6	20	4	19.6	4	5	80	90	3x	MTHC 20090/4
2	22	4	21.6	4	20	74	114	2x	MTHC 22114/4
7	22	4	21.6	6	20	74	114	3x	MTHC 22114/46
2	22	6	21.6	6	20	74	114	2x	MTHC 22114/6
2	22	4	21.6	4	20	95	135	2x	MTHC 22135/4
2	22	6	21.6	6	20	95	135	2x	MTHC 22135/6
2	22	4	21.6	4	20	105	145	2x	MTHC 22145/4
2	22	6	21.6	6	20	105	145	2x	MTHC 22145/6

Dimensions in mm
Spare parts, see page 54

N° 6



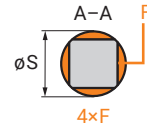
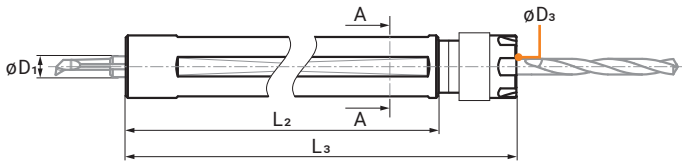
N° 7



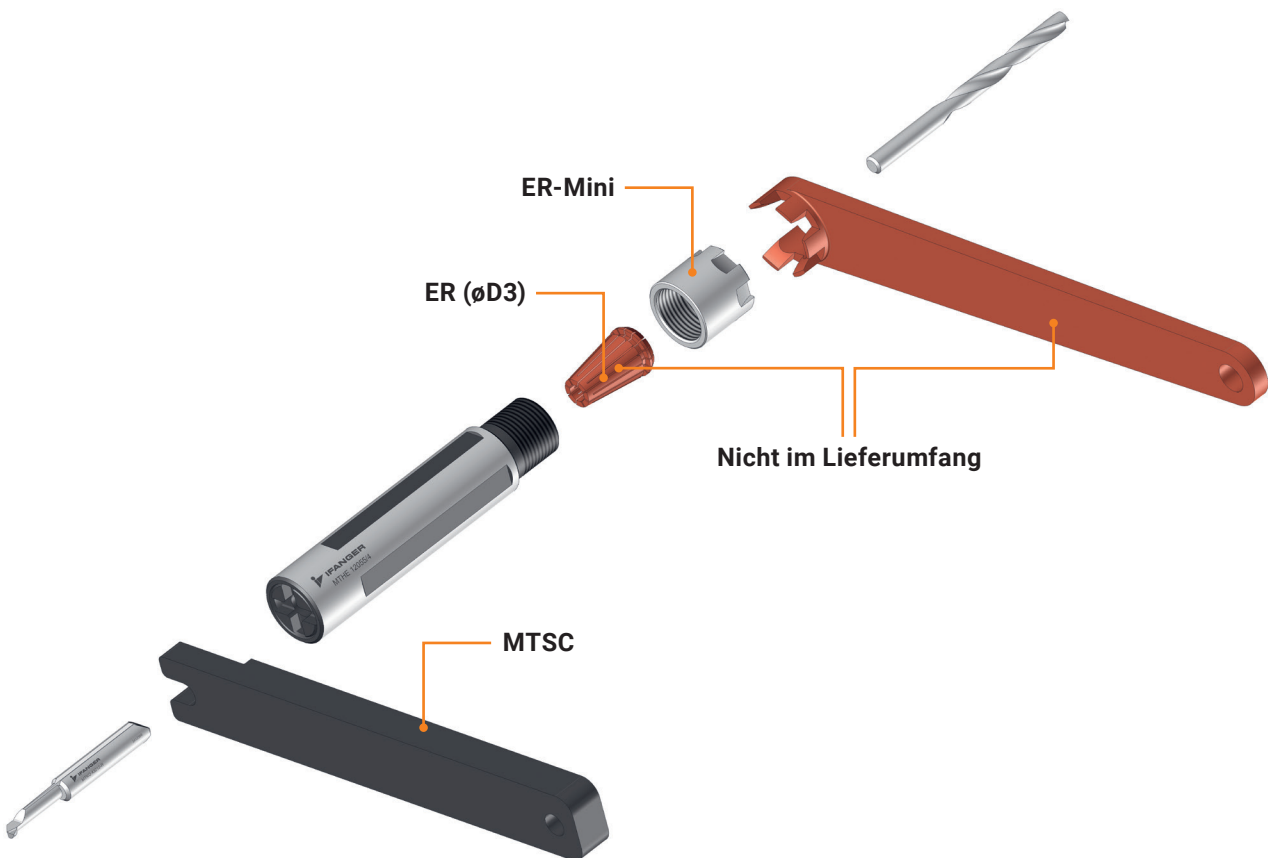
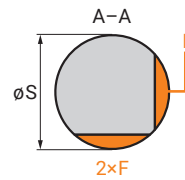
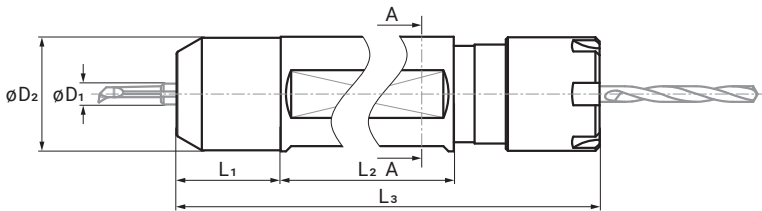
MTHE

Doppelhalter mit Rundschaft
für Swiss-MicroTurn und Spannzange ER

N° 1



N° 2



N°	øS	øD ₁	øD ₂	øD ₃	L ₁	L ₂	L ₃	F	Ref. N°
1	12	4	-	ER8	-	-	55	4x	MTHE 12055/4
1	5/8"	4	-	ER8	-	-	55	4x	MTHE 15055/4
1	16	4	16.0	ER11	-	55	75	4x	MTHE 16071/4
2	16	4	14.0	ER11	10	85	115	2x	MTHE 16110/4
2	3/4"	4	18.6	ER11	23	70	114	2x	MTHE 19108/4
2	3/4"	6	18.6	ER11	23	70	114	2x	MTHE 19108/6
2	3/4"	4	18.6	ER11	23	100	144	2x	MTHE 19138/4
2	3/4"	6	18.6	ER11	23	100	144	2x	MTHE 19138/6
2	20	4	19.6	ER11	20	32	76	2x	MTHE 20071/4
2	22	4	21.6	ER16	20	78	126	2x	MTHE 22114/4
2	22	6	21.6	ER16	20	78	126	2x	MTHE 22114/6
2	22	4	21.6	ER16	20	109	157	2x	MTHE 22145/4
2	22	6	21.6	ER16	20	109	157	2x	MTHE 22145/6

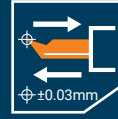
Dimensions in mm
Spare parts, see page 54

MTHB

Halter für Rückseitenbearbeitung
Stufenlos einstellbare Länge



QUICK CHANGE

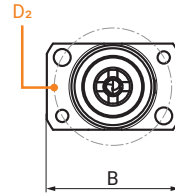
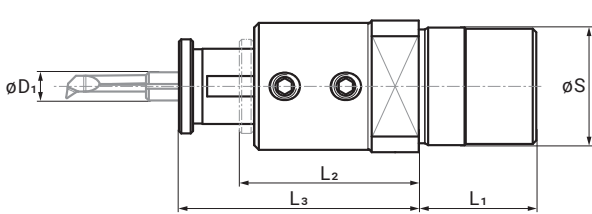


REPEATED
POSITIONING
ACCURACY

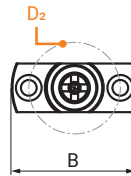
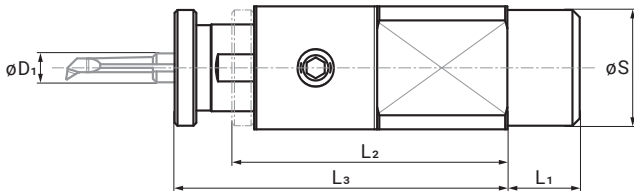


VIBRATION
ABSORBING
TOOL CLAMPING

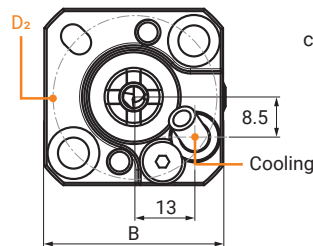
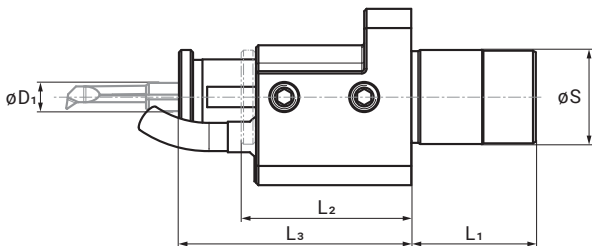
N° 1



N° 2



N° 3

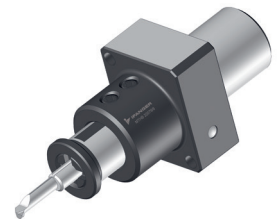
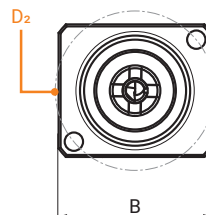
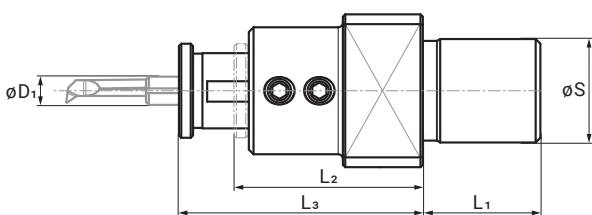


Lockable
cooling hose

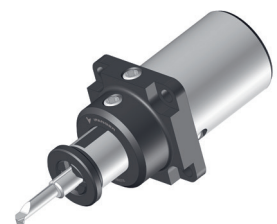
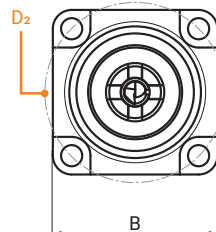
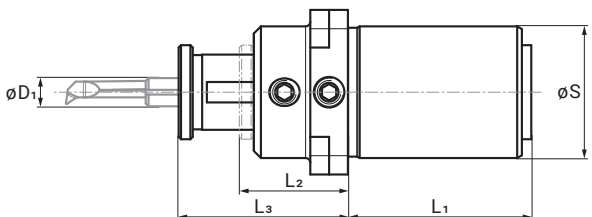
Cooling



N° 4

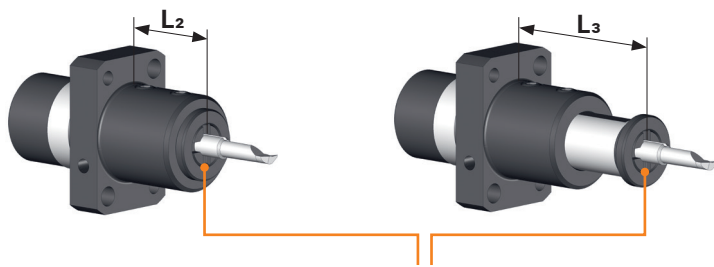


N° 5

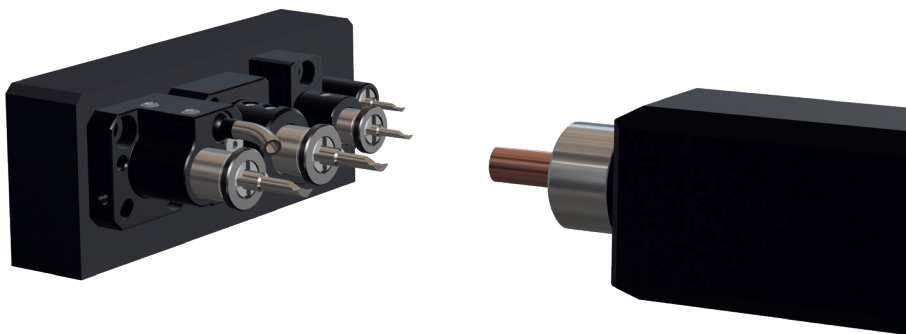


N°	øS	øD ₁	øD ₂	L ₁	L ₂	L ₃	B	Cooling	Ref. N°
1	16	4	31.0	21.0	26	42	24.0	-	MTHB 16065/4
2	16	4	32.0	10.0	38	54	17.0	-	MTHB 16074/4
3	20	4	35.0	26.5	26	49	37.5	ø6	MTHB 20061/4
3	20	6	35.0	26.5	26	49	37.5	ø6	MTHB 20061/6
1	22	4	40.0	25.0	38	58	28.0	-	MTHB 22078/4
1	22	6	40.0	25.0	38	58	28.0	-	MTHB 22078/6
4	22	4	39.0	25.0	40	62	32.5	-	MTHB 22079/4
4	22	6	39.0	25.0	40	62	32.5	-	MTHB 22079/6
1	22	4	38.0	30.0	34	56	38.0	-	MTHB 22080/4
1	22	6	38.0	30.0	34	56	38.0	-	MTHB 22080/6
1	25	4	38.1	25.0	38	83	28.0	-	MTHB 25062/4
1	25	6	38.1	25.0	38	83	28.0	-	MTHB 25062/6
5	28	4	38.1	30.0	35	59	35.0	-	MTHB 28057/4
5	28	6	38.1	30.0	35	59	35.0	-	MTHB 28057/6
4	32	4	40.0	25.0	39	59	39.0	-	MTHB 32081/4
4	32	6	40.0	25.0	39	59	39.0	-	MTHB 32081/6
1	32	4	52.0	30.0	46	64	41.0	-	MTHB 32093/4
1	32	6	52.0	30.0	46	64	41.0	-	MTHB 32093/6
1	33	4	40.0	37.0	39	59	36.0	-	MTHB 33091/4
1	33	6	40.0	37.0	39	59	36.0	-	MTHB 33091/6
1	34	4	42.0	25.0	39	59	38.0	-	MTHB 34081/4
1	34	6	42.0	25.0	39	59	38.0	-	MTHB 34081/6

Dimensions in mm
Spare parts, see page 54



Stufenlos einstellbare Auszugslänge



MTQC

Quick Change, BIMU – IFANGER

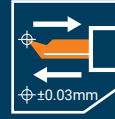
Schnellspan-Wechselkopf für Swiss-MicroTurn Werkzeuge



HIGH VOLUME COOLING



QUICK CHANGE



REPEATED POSITIONING ACCURACY
±0.03mm



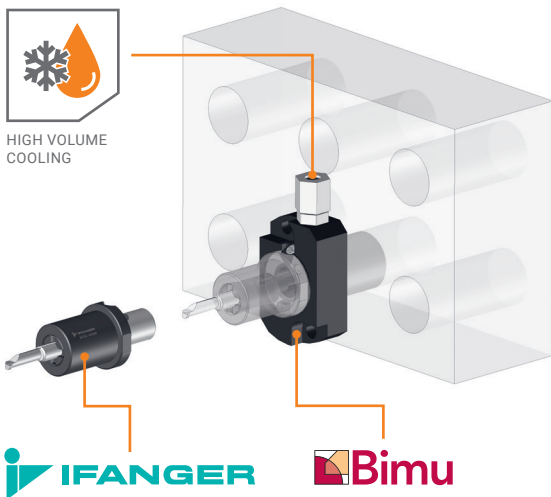
VIBRATION ABSORBING TOOL CLAMPING

Voreinstellung des Werkzeuges ausserhalb der Maschine

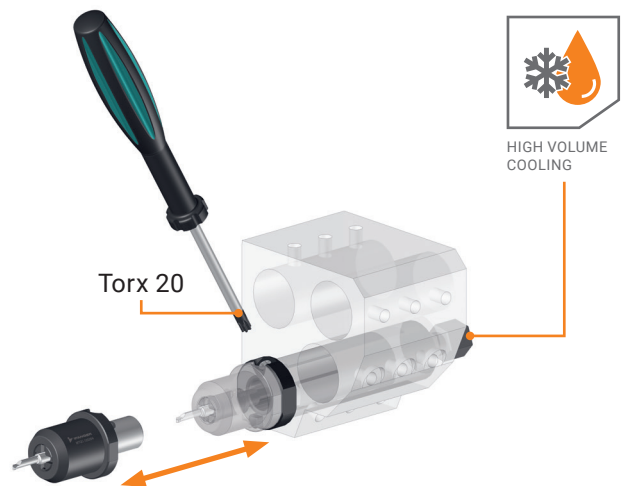
Mit den MTQC-Schnellspan-Wechselköpfen können die Swiss-MicroTurn Werkzeuge ausserhalb der Drehmaschine eingespannt und vermessen werden. Diese Technologie ermöglicht es auch Nicht-Fachleuten, die Werkzeuge schnell und produktionssicher in die Maschine zu spannen.

- Maximale Prozesssicherheit
- Sehr hohe Maschinenverfügbarkeit
- Maschinenoperateure bekommen Freiheit, um mehr Anlagen zu betreuen
- Extrem schneller und sicherer Einsatz des Wechselkopfs

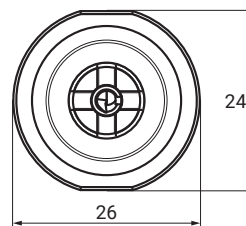
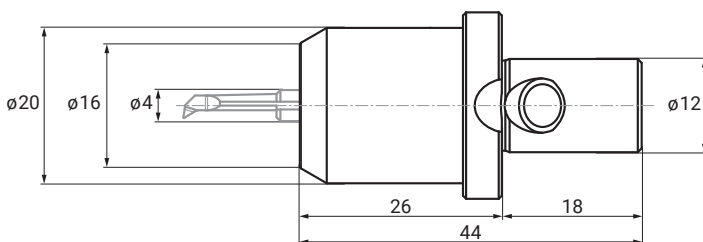
Rückseitenbearbeitung



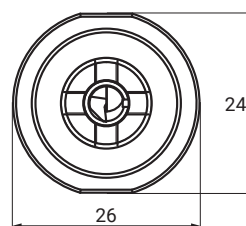
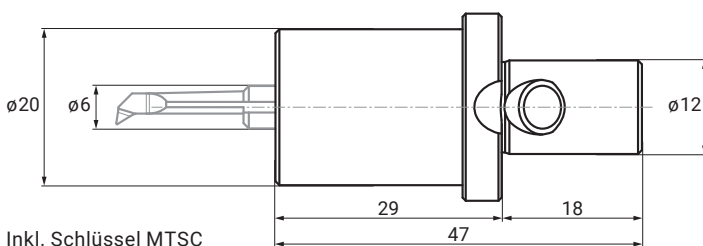
Frontalbearbeitung



Ref. N°: MTQC 12026/4



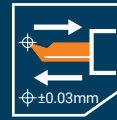
Ref. N°: MTQC 12029/6



Inkl. Schlüssel MTSC



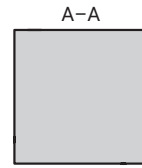
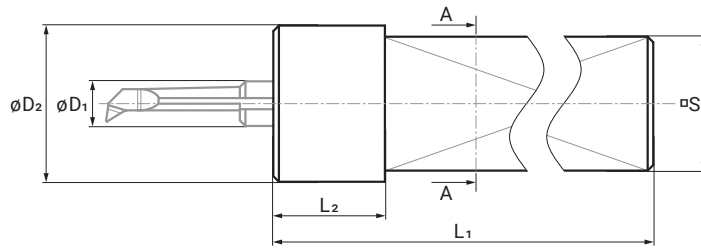
QUICK CHANGE



REPEATED
POSITIONING
ACCURACY

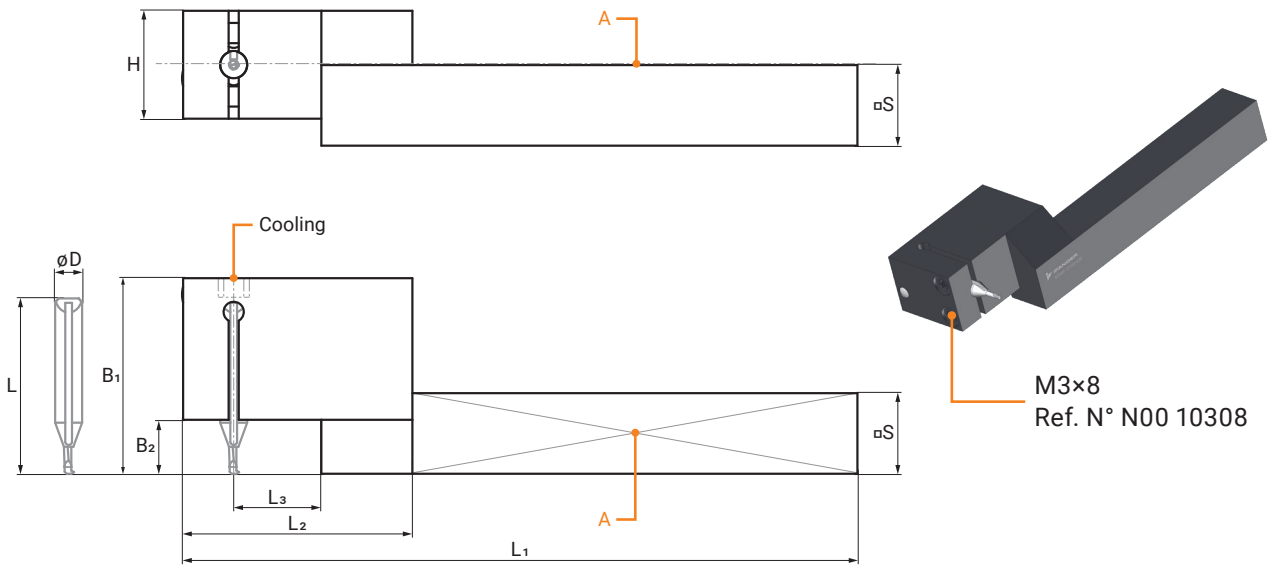


VIBRATION
ABSORBING
TOOL CLAMPING

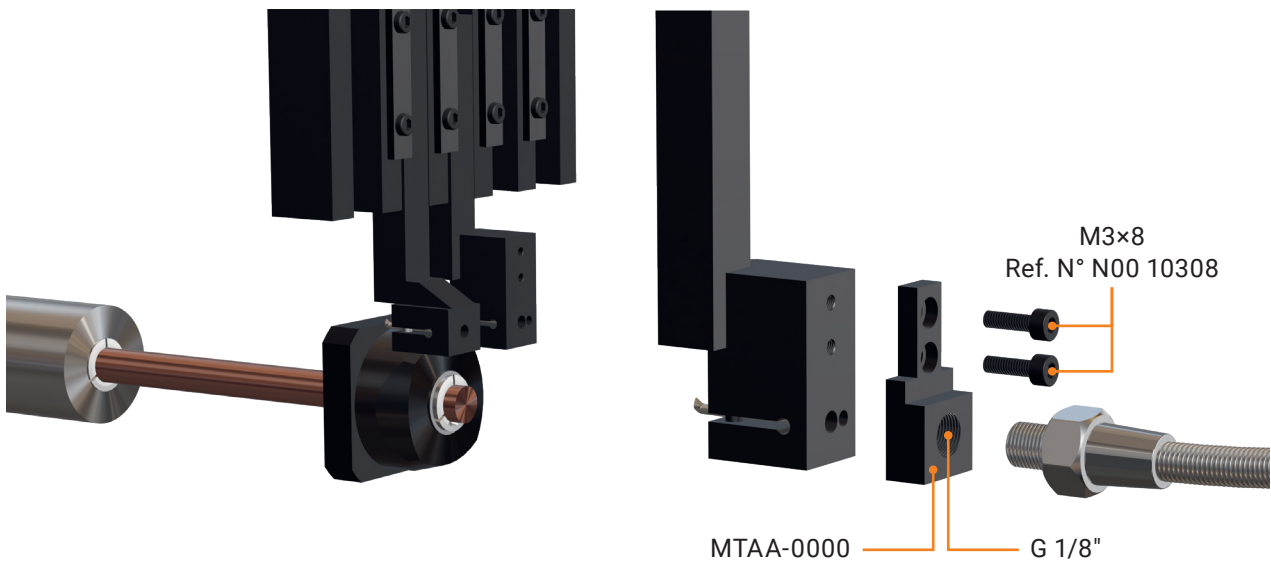


$\varnothing S$	$\varnothing D_1$	$\varnothing D_2$	L_1	L_2	Ref. N°
12×12	4	14.0	85	10	MTHV 12085/4
12×12	6	16.0	95	24	MTHV 12100/6
16×16	4	14.0	100	3	MTHV 16100/4
16×16	6	15.8	100	10	MTHV 16100/6

Dimensions in mm
Spare parts, see page 54



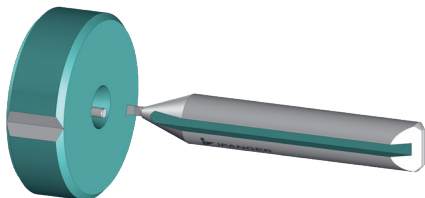
Die Anschlagfläche (A) des Halters entspricht der Spitzenhöhe des Werkzeuges.



□S	∅D	L	L ₁	L ₂	L ₃	B ₁	B ₂	H	Cooling	Ref. N°
7	4	31	100	34	13	35	15	16	Ref. N° MTAA-0000	MTAR 07100/431
8	4	26	100	34	13	29	8	16	Ref. N° MTAA-0000	MTAR 08100/426 *
8	4	31	100	34	13	35	15	16	Ref. N° MTAA-0000	MTAR 08100/431
10	4	26	100	34	13	29	8	16	Ref. N° MTAA-0000	MTAR 10100/426 *
10	4	31	100	34	13	35	15	16	Ref. N° MTAA-0000	MTAR 10100/431
10	4	36	100	34	13	40	20	16	Ref. N° MTAA-0000	MTAR 10100/436
10	6	35	100	34	13	38	14	16	Ref. N° MTAA-0000	MTAR 10100/635
10	6	43	100	34	13	45	21	16	Ref. N° MTAA-0000	MTAR 10100/643
10	6	48	100	34	13	50	26	16	Ref. N° MTAA-0000	MTAR 10100/648
12	4	26	100	34	13	29	8	16	Ref. N° MTAA-0000	MTAR 12100/426 *
12	4	31	100	34	13	35	15	16	Ref. N° MTAA-0000	MTAR 12100/431
12	4	36	100	34	13	40	20	16	Ref. N° MTAA-0000	MTAR 12100/436
12	6	35	100	34	13	38	14	16	Ref. N° MTAA-0000	MTAR 12100/635
12	6	43	100	34	13	45	21	16	Ref. N° MTAA-0000	MTAR 12100/643
12	6	48	100	34	13	50	26	16	Ref. N° MTAA-0000	MTAR 12100/648
12	6	53	100	34	13	55	33	16	Ref. N° MTAA-0000	MTAR 12100/653
16	4	31	130	34	13	35	15	16	Ref. N° MTAA-0000	MTAR 16130/431
16	4	36	130	34	13	40	20	16	Ref. N° MTAA-0000	MTAR 16130/436
16	6	35	130	34	13	38	14	16	Ref. N° MTAA-0000	MTAR 16130/635
16	6	43	130	34	13	45	21	16	Ref. N° MTAA-0000	MTAR 16130/643
16	6	48	130	34	13	50	26	16	Ref. N° MTAA-0000	MTAR 16130/648
16	6	53	130	38	17	55	33	16	Ref. N° MTAA-0000	MTAR 16130/653
16	6	61	130	38	17	64	42	16	Ref. N° MTAA-0000	MTAR 16130/661
16	6	71	130	38	17	74	52	16	Ref. N° MTAA-0000	MTAR 16130/671

Dimensions in mm
* Incl. MTAP-00426

Positionierhilfe MTAP-00426

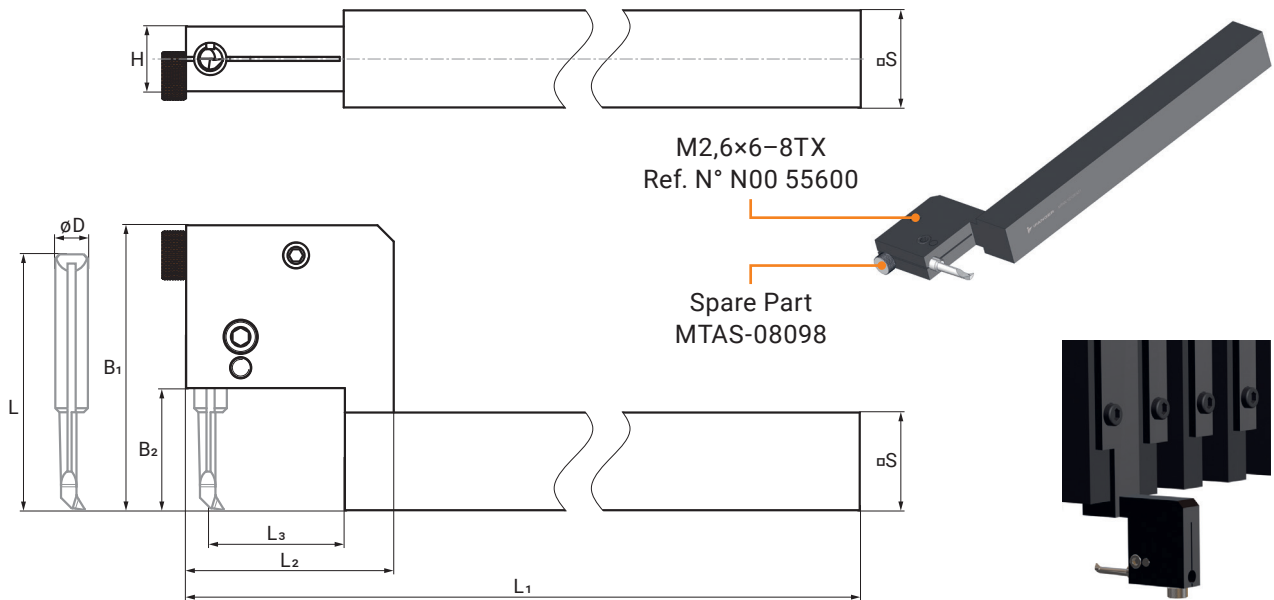


MTAN

Vierkanthalter neutral

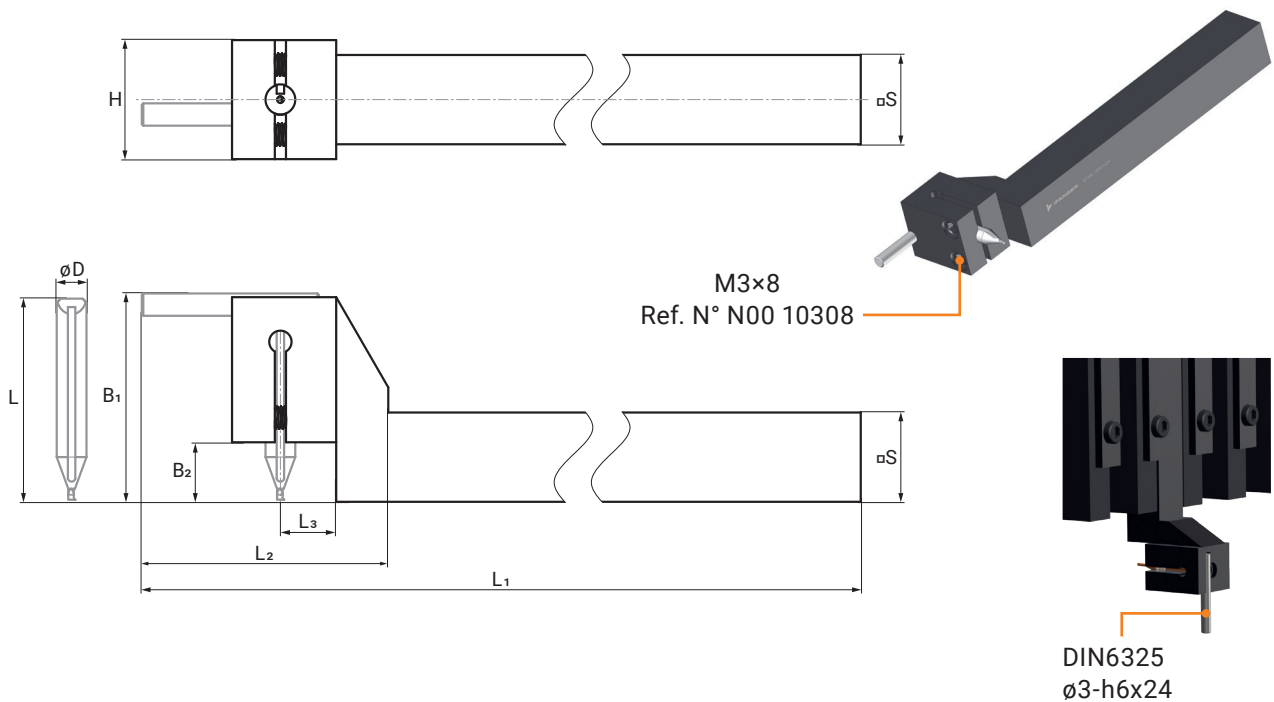
Werkzeugeinführung von hinten, bei engen Platzverhältnisse

N° 1



Mit MODUL-Line Interface, siehe Web-Shop, Ref. N° 42411 und N°42412

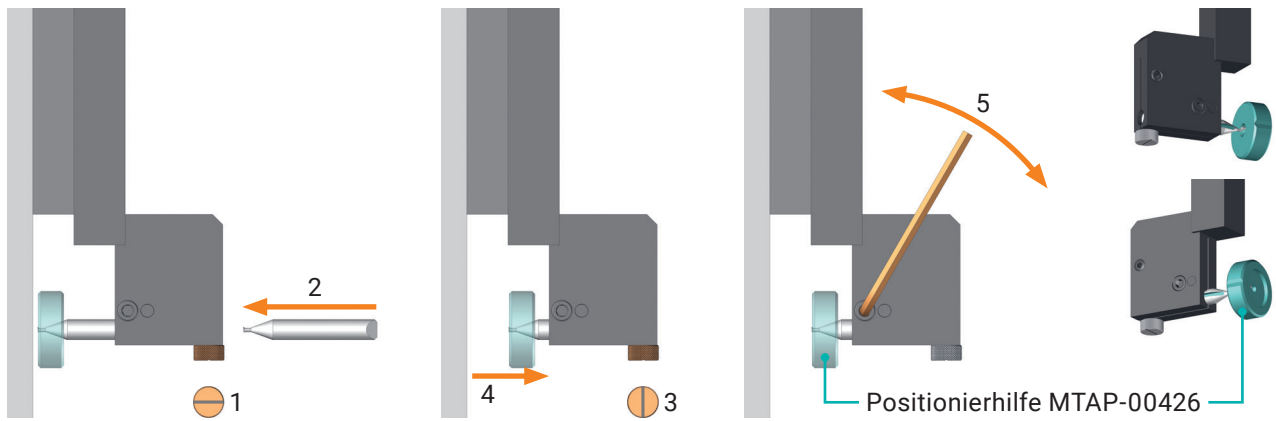
N° 2



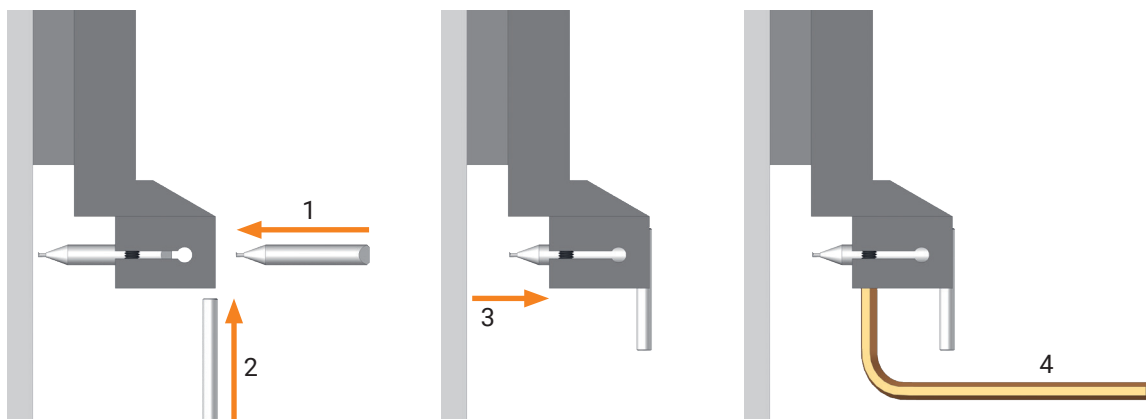
N°	□S	∅D	L	L ₁	L ₂	L ₃	B ₁	B ₂	H	Ref. N°
1	8	4	26	98	18.5	9.5	28.5	8	8	MTAN 08098/426 *
1	8	4	31	98	18.5	9.5	33.5	8	8	MTAN 08098/431
1	10	4	26	98	25.5	13.0	29.0	8	8	MTAN 10098/426 *
1	10	4	31	98	25.5	13.0	33.5	8	8	MTAN 10098/431
1	12	4	26	128	25.5	13.0	29.0	8	8	MTAN 12128/426 *
1	12	4	31	128	25.5	13.0	35.0	15	8	MTAN 12128/431
2	10	4	26	100	21.0	7.5	27.5	8	16	MTAN 10097/426 *
2	12	4	26	100	21.0	7.5	27.5	8	16	MTAN 12097/426 *

Dimensions in mm
* Incl. MTAP-00426

MTAN Anleitung zu N° 1



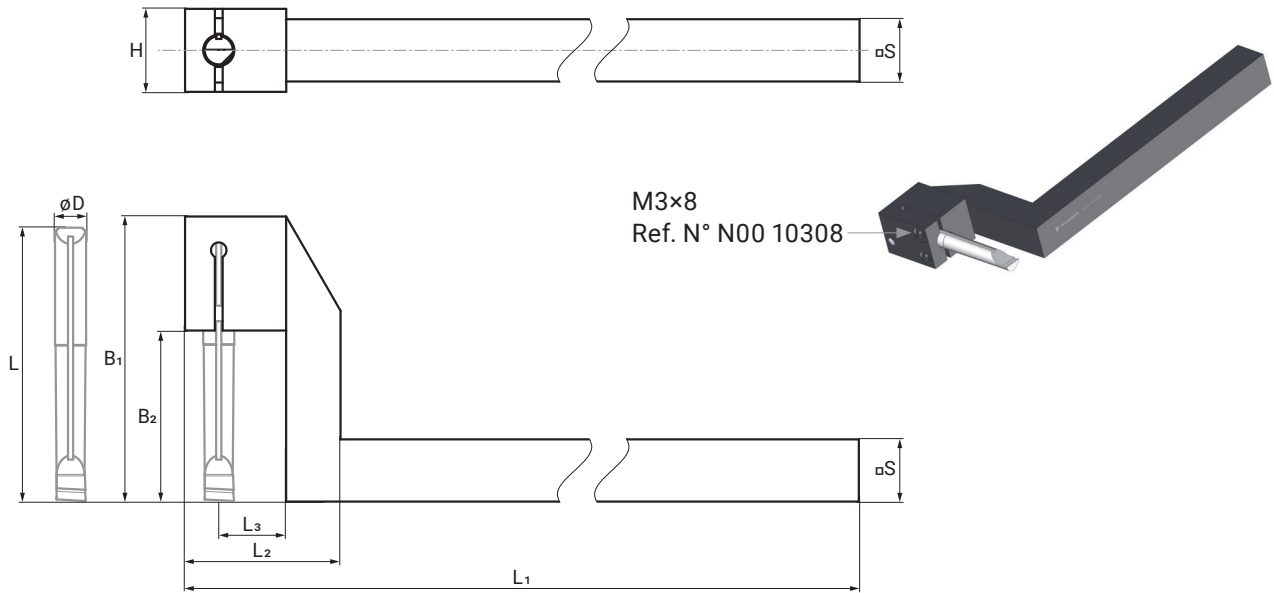
MTAN Anleitung zu N° 2



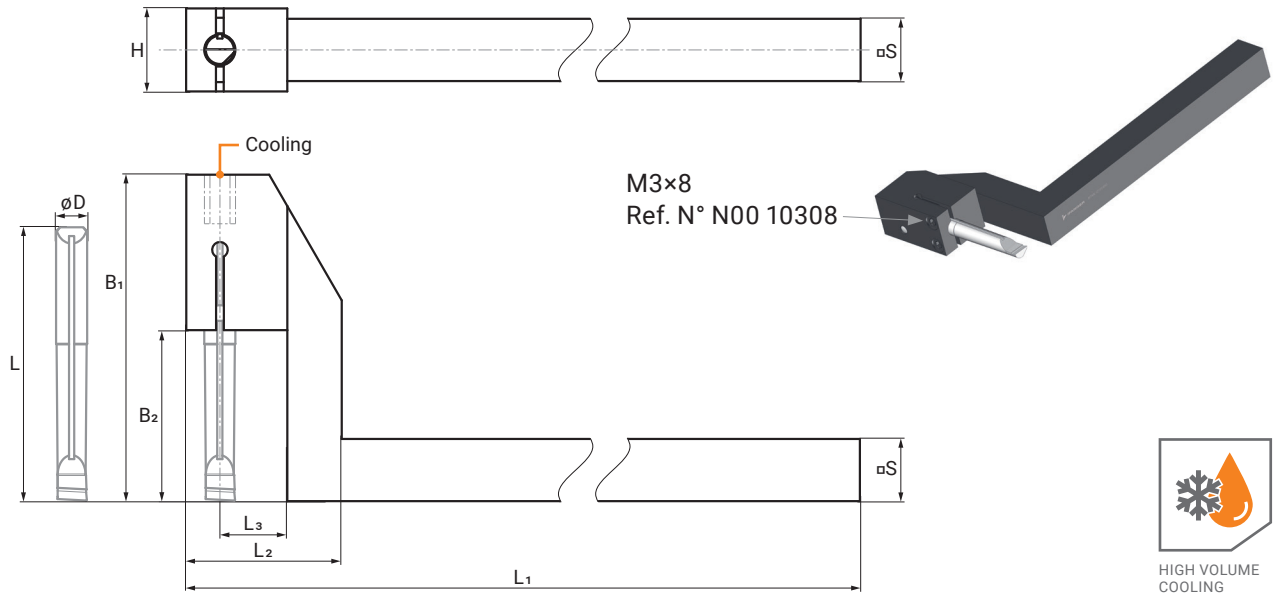
MTAN

Vierkanthalter gekröpft, neutral

N° 1



N° 2

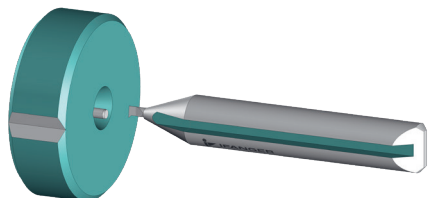


Nº	□S	∅D	L	L ₁	L ₂	L ₃	B ₁	B ₂	H	Cooling	Ref. Nº
1	8	4	26	100	21	7.5	29	8	16	-	MTAN 08100/426 *
1	8	4	31	100	21	7.5	35	15	16	-	MTAN 08100/431
1	10	4	26	100	21	7.5	29	8	16	-	MTAN 10100/426 *
1	10	4	31	100	30	13.0	35	15	16	-	MTAN 10100/431
1	10	4	36	100	30	13.0	40	20	16	-	MTAN 10100/436
1	10	6	35	100	30	13.0	37	14	16	-	MTAN 10100/635
1	10	6	43	100	30	13.0	45	21	16	-	MTAN 10100/643
1	10	6	48	100	30	13.0	50	26	16	-	MTAN 10100/648
1	12	4	26	130	21	7.5	29	8	16	-	MTAN 12130/426 *
1	12	4	31	130	30	13.0	35	15	16	-	MTAN 12130/431
1	12	4	36	130	30	13.0	40	20	16	-	MTAN 12130/436
1	12	6	35	130	30	13.0	37	14	16	-	MTAN 12130/635
1	12	6	43	130	30	13.0	45	21	16	-	MTAN 12130/643
1	12	6	48	130	30	13.0	50	26	16	-	MTAN 12130/648
1	12	6	53	130	30	13.0	55	30	16	-	MTAN 12130/653
2	12	4	31	130	30	13.0	43	15	16	G1/8"	MTAN 12131/431
2	12	4	36	130	30	13.0	48	20	16	G1/8"	MTAN 12131/436
2	12	6	43	130	30	13.0	53	21	16	G1/8"	MTAN 12131/643
2	12	6	48	130	30	13.0	58	26	16	G1/8"	MTAN 12131/648
2	12	6	53	130	30	13.0	63	33	16	G1/8"	MTAN 12131/653
2	12	4	31	130	30	19.5	37	15	16	M12x1.5	MTAN 12132/431
1	16	4	31	130	34	13.0	35	15	16	-	MTAN 16130/431
1	16	4	36	130	34	13.0	40	20	16	-	MTAN 16130/436
1	16	6	35	130	34	13.0	37	14	16	-	MTAN 16130/635
1	16	6	43	130	34	13.0	45	21	16	-	MTAN 16130/643
1	16	6	48	130	34	13.0	50	26	16	-	MTAN 16130/648
1	16	6	53	130	38	17.0	55	33	16	-	MTAN 16130/653
1	16	6	61	130	38	17.0	64	42	16	-	MTAN 16130/661
1	16	6	71	130	38	17.0	74	52	16	-	MTAN 16130/671
2	16	4	31	130	34	13.0	43	15	16	G1/8"	MTAN 16131/431
2	16	4	36	130	34	13.0	48	20	16	G1/8"	MTAN 16131/436
2	16	6	43	130	34	13.0	53	21	16	G1/8"	MTAN 16131/643
2	16	6	48	130	34	13.0	58	26	16	G1/8"	MTAN 16131/648
2	16	6	53	130	40	17.0	63	33	16	G1/8"	MTAN 16131/653
2	16	4	31	130	30	19.5	37	15	16	G1/8"	MTAN 16132/431

Dimensions in mm

* Incl. MTAP-00426

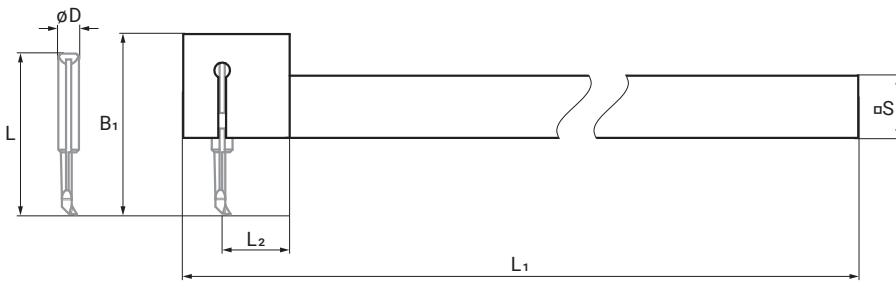
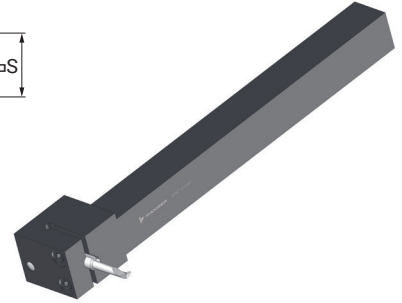
Positionierhilfe MTAP-00426



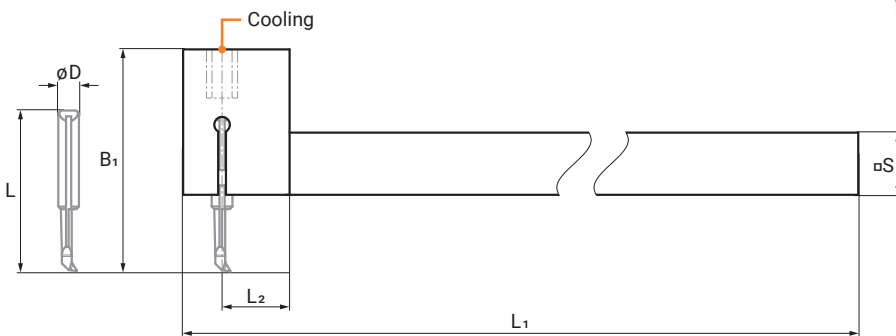
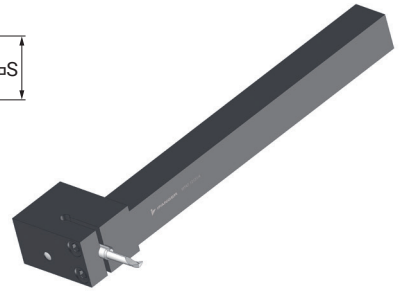
MTAT

Vierkanthalter neutral

N° 1



N° 2



HIGH VOLUME
COOLING

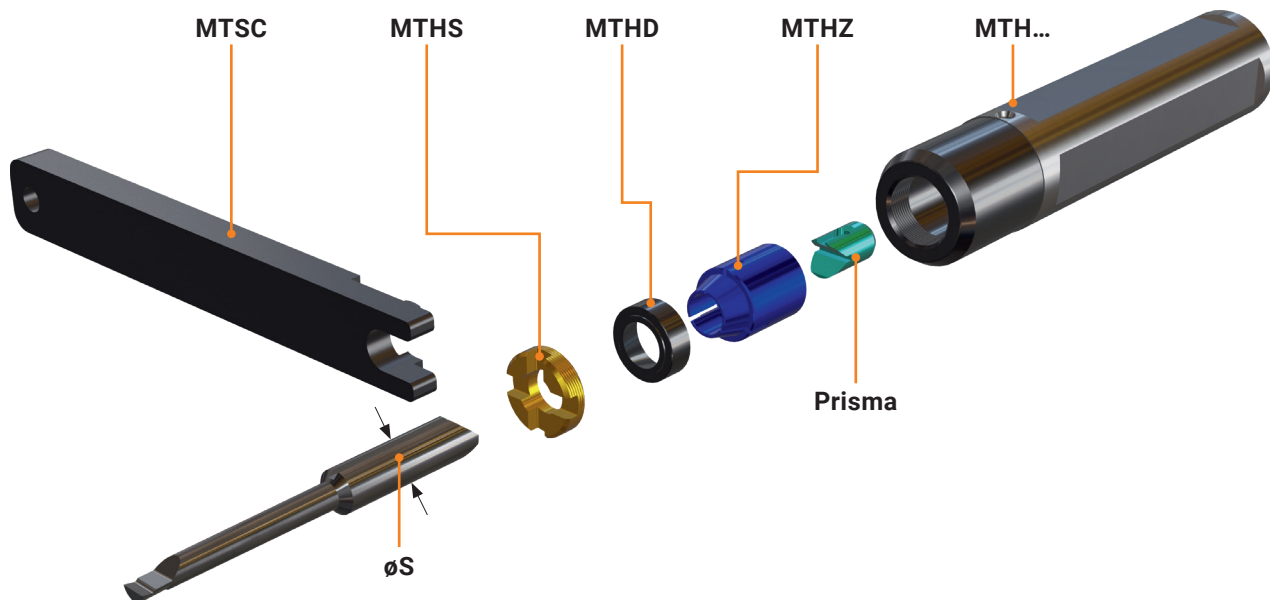
N°	□S	∅D	L ₁	L ₂	B ₁	H	Cooling	Ref. N°
1	8	4	100	20.5	20	16	-	MTAT 08100/4
1	10	4	100	20.5	20	16	-	MTAT 10100/4
1	12	4	130	20.5	20	16	-	MTAT 12130/4
1	12	6	130	20.5	24	16	-	MTAT 12130/6
1	16	4	130	20.5	20	16	-	MTAT 16130/4
1	16	6	130	20.5	24	16	-	MTAT 16130/6
2	12	4	130	20.5	20	16	G1/8"	MTAT 12131/4
2	12	6	130	20.5	24	16	G1/8"	MTAT 12131/6
2	16	4	130	20.5	28	16	G1/8"	MTAT 16131/4
2	16	6	130	20.5	32	16	G1/8"	MTAT 16131/6

Dimensions in mm

Der Inbusschlüssel ist im Lieferumfang der Halter enthalten.

Ersatzteile

für Halter Typ MTH...



$\varnothing S$	Description	Ref. N°
4	Druckring	MTHD-0004
6	Druckring	MTHD-0006
4	Spannschraube	MTHS-0004
6	Spannschraube	MTHS-0006
4	Spannzange	MTHZ-0004
6	Spannzange	MTHZ-0006
4	Schlüssel	MTSC-0004
6	Schlüssel	MTSC-0006
	Prisma	Auf Anfrage

Notizen

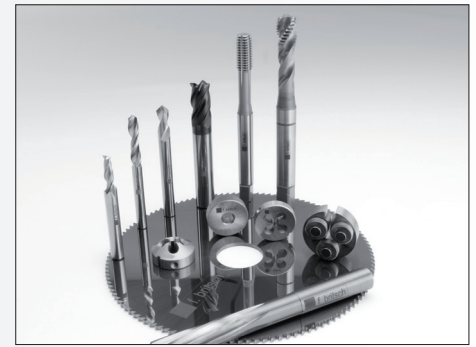
A large grid of graph paper for taking notes, consisting of 20 columns and 40 rows of small squares.



SPANNWERKZEUGE
CLAMPING TOOLS



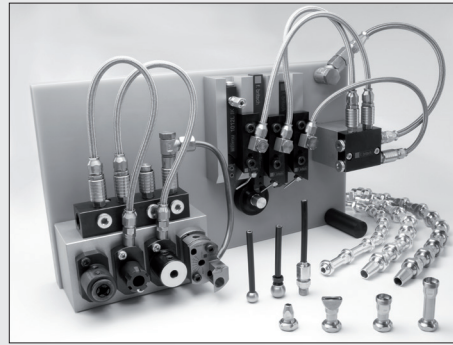
WENDESCHNEIDPLATTENSYSTEM
INSERTSYSTEMS



SCHNEIDWERKZEUGE
CUTTING TOOLS



WERKZEUGHALTER
TOOL HOLDER



KÜHLMITTELSYSTEME
COOLANT SYSTEMS

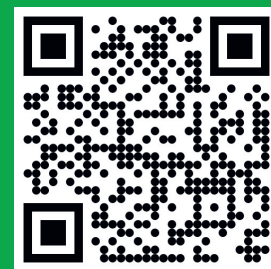


PRÜFMITTEL
MEASURING EQUIPMENT

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