GEWINDEFRÄSEN

6

Kennbuchstabe	Kurzbezeichnung Beispiel	Benennung	Norm	Zur Verfügung stehende Gewindeprofile
M	M 30	ISO-Metrisch- allg. Regelgewinde	DIN 13 T1	ISO-Metrisch
	M 20 x 1	allgemein mit großer Steigung	DIN 13 T2-11	
	DIN 6630 - M 64 x 4	Faßverschraubung, außen	DIN 6630	
	DIN 158 - M 30 x 2 keg	metrisch kegeliges Außengewinde	DIN 158	Auf Anfrage
G	G $1^1/_2$	Zylindrisches Rohrgewinde, nicht im Gewinde dichtend, Innengewinde	DIN ISO 228 T1	Whitworth Rohrgewinde BSW, BSP
	G $1^1/_2$ A	Außengewinde	DIN ISO 228 T1	
Rp	DIN 2999 - Rp $^1/_2$ DIN 3858 - Rp $^1/_8$	Zylindrisches Rohrgewinde, im Gewinde dichtend, Innengewinde	DIN 2999 T1 DIN 3858	Whitworth Rohrgewinde BSW, BSP
R	DIN 2999 - R $^1/_2$ DIN 3858 - R $^1/_8$ - 1	kegeliges Rohrgewinde, im Gewinde dichtend, Außengewinde	DIN 2999 T1 DIN 3858	Kegeliges Rohrgewinde BSPT
Tr	Tr 40 x 7	Metrisches ISO-Trapez- gewinde, allgemein	DIN 103 T1-8	Auf Anfrage
W	DIN 477 - W 21,8 x $^1/_{14}$	Zylindrisches Whitworth-Gewinde	DIN 477 T1	Whitworth Rohrgewinde BSW, BSP
	DIN 477 - W 28,8 x $^1/_{14}$ keg	Kegeliges Whitworth-Gewinde		Auf Anfrage
Pg	DIN 40430 - Pg 21	Stahlpanzerrohrgewinde	DIN 40430	Stahlpanzerrohrgewinde DIN 40430
UN	$^1/_4$ - 20 UNC - 2A	Amerikanisches ISO-Zollgewinde Einheitsgewinde, grob		Amerikanisches ISO-Zollgewinde UN
	$^1/_4$ - 28 UNF - 3A	Einheitsgewinde, fein		
UNJ	$^1/_4$ - 28 UNJ - 3A	Luftfahrtgewinde		Luftfahrtgewinde UNJ
NPT	$^3/_8$ - 18 NPT	Kegeliges Rohrgewinde		Kegeliges Rohrgewinde NPT
NPTF	$^1/_8$ - 27 NPTF - 1	Kegeliges Feinrohrgewinde		Kegeliges Feinrohrgewinde NPTF
ACME	$1^3/_4$ -4 ACME - 2G	Amerikanisches Trapezgewinde		Auf Anfrage

HINWEIS: In der Tabelle sind die gängigsten Gewindearten aufgeführt. Weitere Gewindearten auf Anfrage.

Identification	Short description Example	Description	DIN-Standard	Available threading insert
M	M 30	ISO-Metric thread	DIN 13 T1	ISO-Metric
	M 20 x 1	Coarse pitch	DIN 13 T2-11	
	DIN 6630 - M 64 x 4	barrel fittings external	DIN 6630	
	DIN 158 - M 30 x 2 keg	Metric tapered external thread	DIN 158	On request
G	G $1^1/_2$	Cylindrical pipe thread, no sealing thread, internal thread	DIN ISO 228 T1	Whitworth pipe thread BSW, BSP
	G $1^1/_2$ A	external thread	DIN ISO 228 T1	
Rp	DIN 2999 - Rp $^1/_2$ DIN 3858 - Rp $^1/_8$	Cylindrical pipe thread, sealing thread, internal thread	DIN 2999 T1 DIN 3858	Whitworth pipe thread BSW, BSP
R	DIN 2999 - R $^1/_2$ DIN 3858 - R $^1/_8$ - 1	Tapered pipe thread, sealing thread, external thread	DIN 2999 T1 DIN 3858	Tapered pipe thread BSPT
Tr	Tr 40 x 7	ISO-Trapezoidal thread, general	DIN 103 T1-8	On request
W	DIN 477 - W 21,8 x $^1/_{14}$	Cylindrical Whitworth thread	DIN 477 T1	Whitworth pipe thread BSW, BSP
	DIN 477 - W 28,8 x $^1/_{14}$ keg	Tapered Whitworth thread		On request
Pg	DIN 40430 - Pg 21	Pg-thread	DIN 40430	Pg-thread DIN 40430
UN	$^1/_4$ - 20 UNC - 2A	American UN-thread coarse pitch		American UN-thread
	$^1/_4$ - 28 UNF - 3A	fine pitch		
UNJ	$^1/_4$ - 28 UNJ - 3A	Aerospace thread		Aerospace thread UNJ
NPT	$^3/_8$ - 18 NPT	Tapered pipe thread		Tapered pipe thread NPT
NPTF	$^1/_8$ - 27 NPTF - 1	Tapered fine pitch pipe thread		Tapered fine pipe thread NPTF
ACME	$1^3/_4$ -4 ACME - 2G	American trapezoidel thread		On request

REMARK: The above table shows the most common threads. Other threads are available on request.

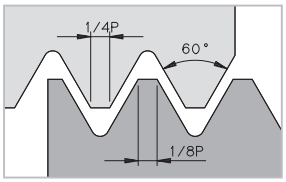
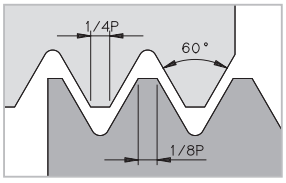
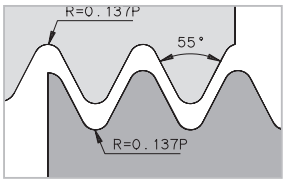
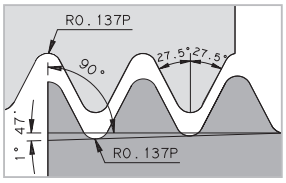
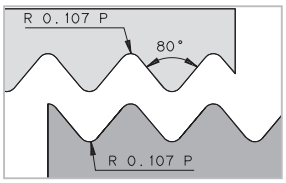
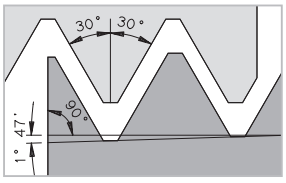
Tipi di filettature

codice identificativo	Denominazione esempio	Descrizione	Norma	Tipologie di inserti disponibili
M	M 30	ISO-Metrica-filettatura normale	DIN 13 T1	ISO-Metrica
	M 20 x 1	Filettatura a passo Grosso	DIN 13 T2-11	
	DIN 6630 - M 64 x 4	Filettatura fusti, esterna	DIN 6630	
	DIN 158 - M 30 x 2 conica	Filettatura metrica Esterna conica	DIN 158	A richiesta
G	G $1^1/_2$	Filettatura cilindrica per raccordi, filettatura a tenuta, filettatura interna	DIN ISO 228 T1	Filetto tubi Whitworth BSW, BSP
	G $1^1/_2$ A	Esterna conica	DIN ISO 228 T1	
Rp	DIN 2999 - Rp $^1/_2$ DIN 3858 - Rp $^1/_8$	Filettatura cilindrica per raccordi, filetto a tenuta, filettatura interna	DIN 2999 T1 DIN 3858	Filetto tubi Whitworth BSW, BSP
R	DIN 2999 - R $^1/_2$ DIN 3858 - R $^1/_8$ - 1	Filettatura conica per raccordi, filetto a tenuta, Esterna conica	DIN 2999 T1 DIN 3858	Filetto conico tubi BSPT
Tr	Tr 40 x 7	Filettatura Metrica Trapezoidale, normale	DIN 103 T1-8	A richiesta
W	DIN 477 - W 21,8 x $^1/_{14}$	Filettatura cilindrica Whitworth	DIN 477 T1	Filetto tubi Whitworth BSW, BSP
	DIN 477 - W 28,8 x $^1/_{14}$ conica	Filettatura conica Whitworth		A richiesta
Pg	DIN 40430 - Pg 21	Filettatura PG	DIN 40430	Filettatura pg DIN 40430
UN	$^1/_4$ - 20 UNC - 2A	Filettatura a norma americana UN, filettatura normale, passo grosso		Filettatura a norma standard americana UN
	$^1/_4$ - 28 UNF - 3A	Filettatura a norma americana UN, filettatura normale, passo grosso		
UNJ	$^1/_4$ - 28 UNJ - 3A	Filettatura aeronautica		Filettatura aeronautica UNJ
NPT	$^3/_8$ - 18 NPT	Filetto conico tubi		Filetto conico tubi NPT
NPTF	$^1/_8$ - 27 NPTF - 1	Filettatura tubi conica a passo fine		Filettatura tubi conica a passo fine NPTF
ACME	$1^3/_4$ -4 ACME - 2G	Filettatura a norma americana ACME trapezoidale		A richiesta

NOTA: La tabella riporta i più comuni filetti utilizzati. Altre tipologie disponibili a richiesta.

Gewindefräsen – Übersicht

Thread Milling – Program overview
Fresatura per filettatura – Gamma prodotti

		Wendeschneidplatten *Indexable inserts* Inserti **Seite** / *Page* / Pagina	Klemmhalter *Tool holders* Corpi fresa **Seite** / *Page* / Pagina
Metrisch *Metric* Metrica **ISO**		**262 – 263**	**256 – 257**
Amerikanisches ISO-Zollgewinde *American thread* Filettatura norme americane **UN**		**264 – 265**	**257**
Whitworth Rohrgewinde *Whitworth pipe thread* Filettatura tubi Whitworth **BSW, BSP**		**266**	**257**
Kegeliges Rohrgewinde *Tapered pipe thread* Filettatura conica tubi **BSPT**		**267**	**258**
Stahlpanzerrohrgewinde *PG-thread* Filettatura PG **DIN 40430**		**268**	**257**
Kegeliges Rohrgewinde *Tapered pipe thread* Filettatura conica tubi **NPT**		**269**	**258**

6

Gewindefräser für kleine Bohrungsdurchmesser ab 9,5 mm

Thread milling cutter for small bore diameter down to 9.5 mm
Fresa a filettare per diametro di foro piccolo a partire da 9,5 mm

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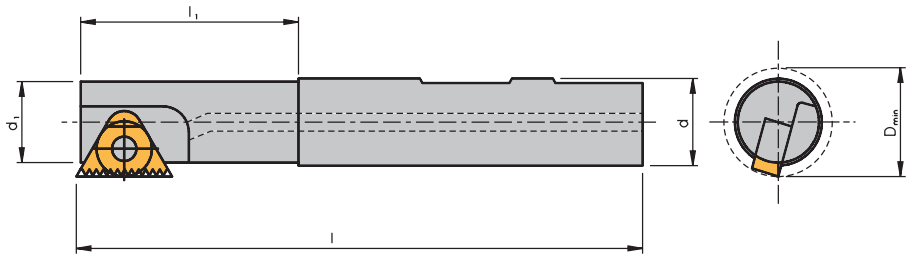

Halter / *Holder* / Utensile

	Bezeichnung *Designation* Articolo	**l**	**l_1**	**d**	**d_1**	**D_{min}**
10,4	**TMMC 12-6,0**	69	12	12	6,8	9
10,4	**TMMC 20-6,0**	84	17	20	6,8	9

ACHTUNG: Beim Fräsen von Innengewinden – aufgrund der Profilverzerrung – kleinsten Bohrungsdurchmesser beachten. Seite 270.
ATTENTION: If producing an internal thread, attention has to be paid to the minimum bore diameters for thread milling. Page 270.
ATTENZIONE: In caso di fresatura di un filetto interno – in base alla deformazione del profilo – deve essere posta attenzione al diametro di foro minimo. Pag. 270.

Ersatzteile / *Spare parts* / Ricambi

	Klemmschraube *Clamping screw* Vite di bloccaggio	**Schlüssel** *Key* Chiave
10,4	SN7T	KS 5151

Standard-Gewindefräser
Standard thread milling cutter
Fresa a filettare standard

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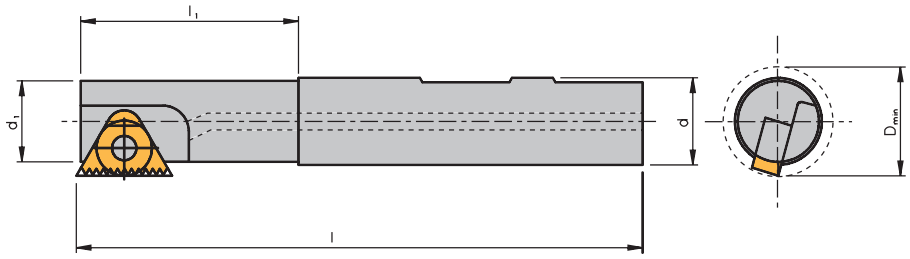

Halter / *Holder* / Utensile

	Bezeichnung *Designation* Articolo	l	l_1	d	d_1	D_{min}
11	**TMC 12-2**	70	12	12	8,9	11,5
11	**TMC 20-2**	85	20	20	8,9	11,5
16	**TMC 16-3**	90	22	16	13,6	17,0
16	**TMC 20-3**	95	43	20	16,6	20,0
27	**TMC 25-5**	110	52	25	24,0	30,0
27	**TMC 32-5**	120	58	32	31,0	37,0

ACHTUNG: Beim Fräsen von Innengewinden – aufgrund der Profilverzerrung – kleinsten Bohrungsdurchmesser beachten. Seite 270.
ATTENTION: If producing an internal thread, attention has to be paid to the minimum bore diameters for thread milling. Page 270.
ATTENZIONE: In caso di fresatura di un filetto interno – in base alla deformazione del profilo – deve essere posta attenzione al diametro di foro minimo. Pag. 270.

Ersatzteile / *Spare parts* / Ricambi

	Klemmschraube *Clamping screw* Vite di bloccaggio	**Schlüssel** *Key* Chiave
11	SN2T	KS 1751
16	SN3T	KS 2510
27	SN5TM	KS 2525

Gewindefräser für keglige Gewinde
Thread milling cutter for tapered threads
Fresa a filettare per filetti conici

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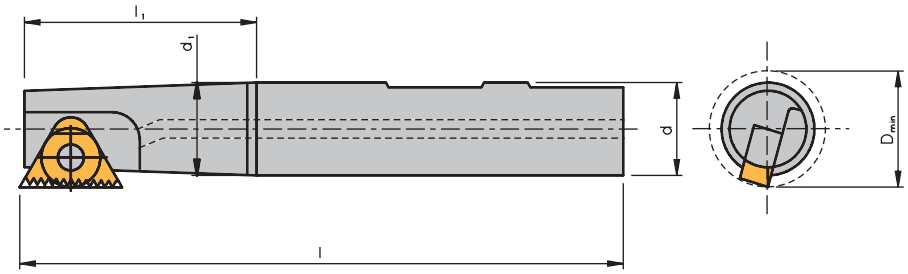

Halter / *Holder* / Utensile

	Bezeichnung *Designation* Articolo	l	l_1	d	d_1	D_{min}
16	**TMNC 16-3L**	80	22	16	12,5	15,5
16	**TMNC 16-3R**	80	22	16	12,5	15,5
16	**TMNC 20-3R**	85	23	20	15,0	19,0

ACHTUNG: Beim Fräsen von Innengewinden – aufgrund der Profilverzerrung – kleinsten Bohrungsdurchmesser beachten. Seite 270.
Linke Wendeschneidplatten sind mit „L" gekennzeichnet und benötigen einen linken Gewindefräser.
ATTENTION: If producing an internal thread, attention has to be paid to the minimum bore diameters for thread milling. Page 270.
Left-hand indexable inserts are marked with "L" and require a left-hand milling cutter.
ATTENZIONE: In caso di fresatura di un filetto interno – in base alla deformazione del profilo – deve essere posta attenzione al diametro di foro minimo. Pag. 270.
Gli inserti "sinistri" sono marcati con "L" e necessitano di una fresa a filettare sinistra.

Ersatzteile / *Spare parts* / Ricambi

	Klemmschraube *Clamping screw* Vite di bloccaggio	**Schlüssel** *Key* Chiave
16	SN3T	KS 2510

Rundum überzeugend: ARNO-Gewindefräser aus Vollhartmetall für die Bearbeitung von Stahl, Aluminium und NE-Metallen.

Solid carbide thread mills for steel, aluminium and none ferrous materials.

Frese a filettare per tutti i tipi di filettature e per lavorazione di acciai e ghise.

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TiAlN beschichtete Gewindefräser aus Feinstkorn-Hartmetall bieten Ihnen eine optimale, gleichmäßige Gewindequalität sowie eine hohe Verschleißfestigkeit.

Fine grain solid carbide cutters with TIALN coating, some with through tool coolant and chamfering edge.

Frese a filettare in metallo duro integrale rivestite per lavorare Acciaio, ghisa, Acciaio inossidabile, leghe esotiche o refrattarie e acciai temprati fino a 50 HRC.

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Hartmetall beschichtet / *Carbide coated* / Metallo duro rivestito

AL100

TiAlN-beschichtete Hartmetallsorte zur Bearbeitung von Stahlwerkstoffen, rostfreiem Stahl, Gusswerkstoffen und exotischen Materialien wie Hastelloy, Waspaloy und Inconel. Auch für die Hartzerspanung geeignet.

TiAlN coated carbide grade for machining steel, stainless steel, cast and exotic materials such as Hasteloy, Waspaloy and Inconel. Grade can also be used for hard machining.

Qualità rivestita TiAlN per la lavorazione di acciaio, acciaio inossidabile, acciaio da fusione e materiali esotici quali Hastelloy, Waspaloy ed Inconell. Qualità idonea anche per materiali duri.

AM15C

TiN-beschichtete Feinkorn-Hartmetallsorte mit sehr hoher Zähigkeit. Bearbeitung von Stahl, rostfreiem Stahl, Nickelbasislegierungen, Aluminium und Grauguss. Besonders geeignet für exotische Werkstoffe und säurebeständige Stähle.

TiN coated sub micron grade with high toughness. Machining steel, stainless steel, nickel based alloys, aluminum and cast iron. Specially suitable for exotic materials and acid resistant materials.

Qualità rivestita TiN su base Sub-micrograna con elevata tenacità. Per la lavorazione di acciaio, acciaio inossidabile, leghe a base Nichel, alluminio e ghisa. Specialmente valida per lavorazioni di materiali esotici e leghe anticorrosive.

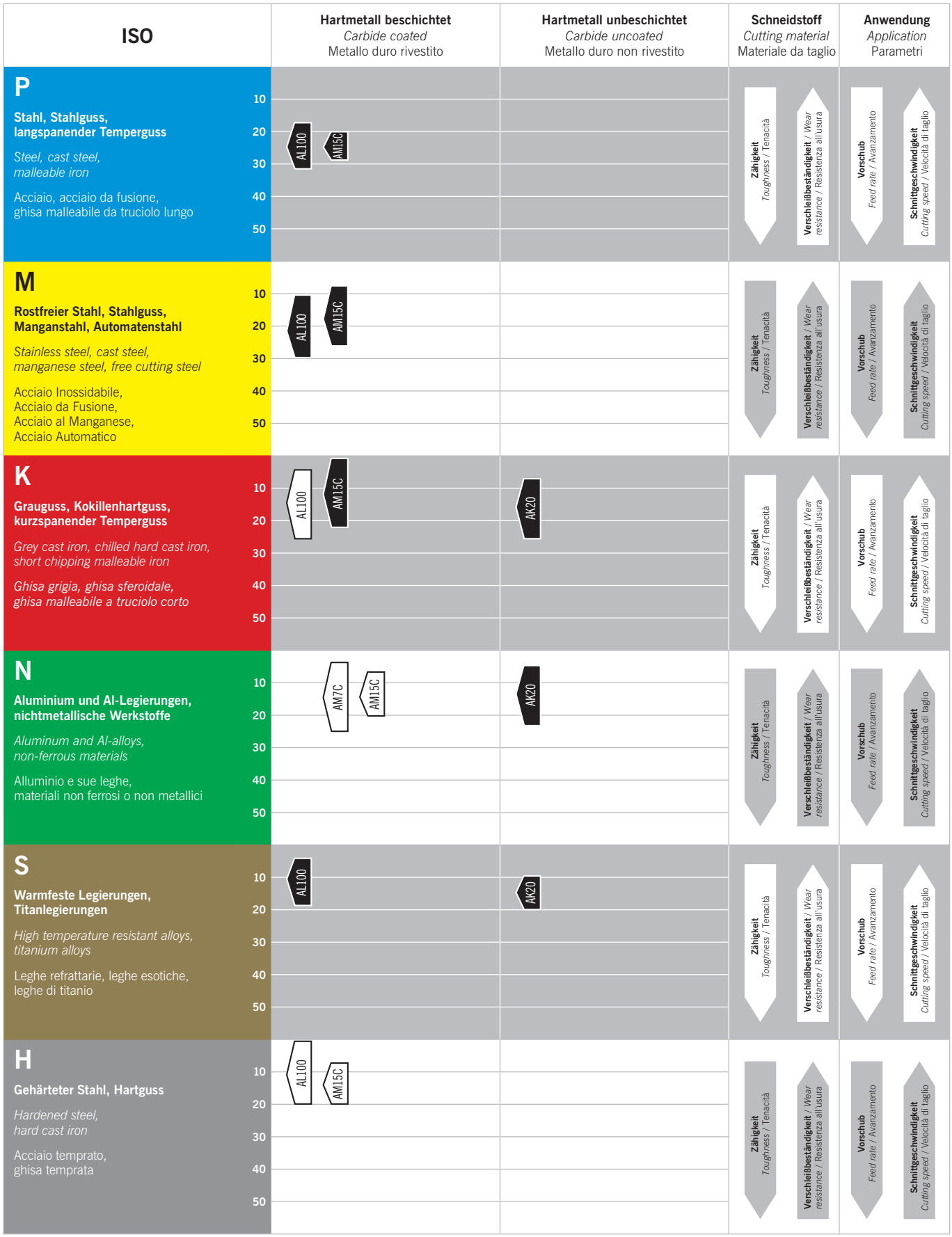
Hartmetall unbeschichtet / *Carbide uncoated* / Metallo duro non rivestito

AK20

Bearbeitung von NE-Metallen und Grauguss bei kleinen Schnittgeschwindigkeiten. Außerdem geeignet für hochwarmfeste Werkstoffe. Gute Kantenschärfe.

Machining of non-ferrous materials and grey cast iron at normal cutting speeds. Also suitable for heat-resistant materials. Good cutting edge stability.

Qualità per la lavorazione di materiali non ferrosi e ghisa grigia a normali velocità di taglio. Idonea anche per leghe refrattarie. Buona stabilità del tagliente.



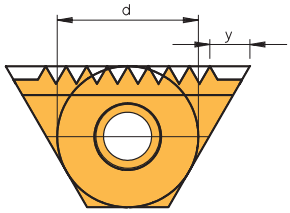
Hauptanwendungsbereich / *Main application area* / Applicazione principale

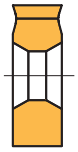
AL100 — **Sorte** / *Grade* / Qualità
Empfohlener Anwendungsbereich / *Recommended application area* / Applicazione consigliata

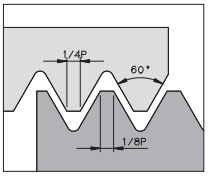
Nebenanwendungsbereich / *Secondary application area* / Applicazione secondaria

AL100 — **Sorte** / *Grade* / Qualità
Empfohlener Anwendungsbereich / *Recommended application area* / Applicazione consigliata

Außengewinde
External threading
Filettatura esterna







	Teilung *Pitch* Passo [mm]	Bezeichnung *Designation* Articolo	d	y	z	Sorten / *Grades* / Qualità: beschichtet *coated* rivestito AM15C	beschichtet *coated* rivestito AL100	unbeschichtet *uncoated* non rivestito AK20	Klemmhalter *Tool holder* Corpo fresa
11	0,50	**11E-ISO0,50TMF**	6,35	0,8	20			●	**TMC..-2**
11	0,75	**11E-ISO0,75TM**	6,35	0,6	14		●		**TMC..-2**
11	1,00	**11E-ISO1,00TM**	6,35	1,0	10		●		**TMC..-2**
11	1,25	**11E-ISO1,25TM**	6,35	1,1	8	●	●		**TMC..-2**
11	1,50	**11E-ISO1,50TM**	6,35	1,0	6	●		●	**TMC..-2**
16	0,75	**16E-ISO0,75TM**	9,52	1,1	20	●		●	**TMC..-3**
16	1,00	**16E-ISO1,00TM**	9,52	1,3	14			●	**TMC..-3**
16	1,25	**16E-ISO1,25TM**	9,52	1,4	12	●		●	**TMC..-3**
16	1,50	**16E-ISO1,50TM**	9,52	1,5	10	●	●	●	**TMC..-3**
16	1,75	**16E-ISO1,75TM**	9,52	2,1	8		●	●	**TMC..-3**
16	2,00	**16E-ISO2,00TM**	9,52	2,3	7		●	●	**TMC..-3**
27	1,00	**27E-ISO1,00TM**	15,87	1,3	26			●	**TMC..-5**
27	1,25	**27E-ISO1,25TM**	15,87	1,4	20			●	**TMC..-5**
27	1,50	**27E-ISO1,50TM**	15,87	1,8	17			●	**TMC..-5**
27	1,75	**27E-ISO1,75TM**	15,87	2,4	14	●		●	**TMC..-5**
27	2,00	**27E-ISO2,00TM**	15,87	2,8	12	●		●	**TMC..-5**
27	2,50	**27E-ISO2,50TM**	15,87	2,5	10	●		●	**TMC..-5**
27	3,00	**27E-ISO3,00TM**	15,87	3,3	8	●		●	**TMC..-5**
27	3,50	**27E-ISO3,50TM**	15,87	3,3	7	●		●	**TMC..-5**
27	4,00	**27E-ISO4,00TM**	15,87	3,8	6	●		●	**TMC..-5**
27	4,50	**27E-ISO4,50TM**	15,87	4,7	5			●	**TMC..-5**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar.
Remark: Indexable inserts are double-sided.
Nota: Gli inserti sono a due lati.

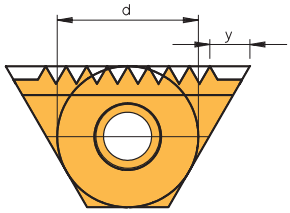
P	○	●	
M	●	●	
K		○	●
N			●
S		○	
H			

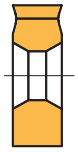
● **Hauptanwendung**
Main application
Applicazione principale

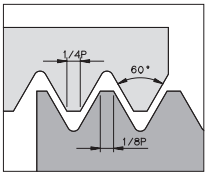
○ **Nebenanwendung**
Secondary application
Applicazione secondaria

6

Innengewinde
Internal threading
Filettatura interna







l	Teilung *Pitch* Passo [mm]	Bezeichnung *Designation* Articolo	d	y	z	Sorten / *Grades* / Qualità: beschichtet *coated* rivestito AM15C	beschichtet *coated* rivestito AL100	unbeschichtet *uncoated* non rivestito AK20	Klemmhalter *Tool holder* Corpo fresa
10,4	0,50	**10,4I-ISO0,50TM**	6,00	0,4	20		●		**TMMC..-6,0**
10,4	0,75	**10,4I-ISO0,75TM**	6,00	0,7	13		●		**TMMC..-6,0**
10,4	1,00	**10,4I-ISO1,00TM**	6,00	1,2	9		●		**TMMC..-6,0**
11	0,50	**11I-ISO0,50TM**	6,35	0,8	20		●	●	**TMC..-2**
11	0,75	**11I-ISO0,75TM**	6,35	0,6	14		●	●	**TMC..-2**
11	1,00	**11I-ISO1,00TM**	6,35	1,0	10		●	●	**TMC..-2**
11	1,25	**11I-ISO1,25TM**	6,35	1,1	7		●	●	**TMC..-2**
11	1,50	**11I-ISO1,50TM**	6,35	1,0	7		●	●	**TMC..-2**
16	0,50	**16I-ISO0,50TM**	9,52	1,0	30	●		●	**TMC..-3**
16	0,75	**16I-ISO0,75TM**	9,52	1,1	20	●		●	**TMC..-3**
16	1,00	**16I-ISO1,00TM**	9,52	1,8	15			●	**TMC..-3**
16	1,25	**16I-ISO1,25TM**	9,52	1,4	12	●		●	**TMC..-3**
16	1,50	**16I-ISO1,50TM**	9,52	1,5	10	●	●	●	**TMC..-3**
16	1,75	**16I-ISO1,75TM**	9,52	2,1	8	●	●	●	**TMC..-3**
16	2,00	**16I-ISO2,00TM**	9,52	2,3	7		●	●	**TMC..-3**
27	1,00	**27I-ISO1,00TM**	15,87	1,3	26			●	**TMC..-5**
27	1,25	**27I-ISO1,25TM**	15,87	1,4	20			●	**TMC..-5**
27	1,50	**27I-ISO1,50TM**	15,87	1,8	17	●		●	**TMC..-5**
27	1,75	**27I-ISO1,75TM**	15,87	2,4	14	●		●	**TMC..-5**
27	2,00	**27I-ISO2,00TM**	15,87	2,8	12			●	**TMC..-5**
27	2,50	**27I-ISO2,50TM**	15,87	2,5	10	●			**TMC..-5**
27	3,00	**27I-ISO3,00TM**	15,87	3,3	8		●	●	**TMC..-5**
27	3,50	**27I-ISO3,50TM**	15,87	3,3	7	●		●	**TMC..-5**
27	4,00	**27I-ISO4,00TM**	15,87	3,8	6			●	**TMC..-5**
27	4,50	**27I-ISO4,50TM**	15,87	4,7	5			●	**TMC..-5**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar, außer Wendeschneidplatten mit l=10,4 mm – diese sind einseitig einsetzbar.
Remark: Indexable inserts are double-sided, except indexable inserts with l=10.4 mm are single sided.
Nota: Gli inserti sono a due lati, eccetto gli inserti con l=10,4 mm sono ad un solo lato.

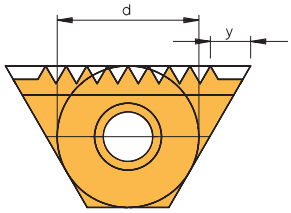
P	○	●
M	●	●
K		○ ●
N		●
S		○
H		

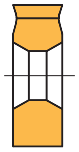
● **Hauptanwendung**
Main application
Applicazione principale

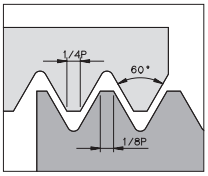
○ **Nebenanwendung**
Secondary application
Applicazione secondaria

6

Außengewinde
External threading
Filettatura esterna







						Sorten / *Grades* / Qualità		
						beschichtet *coated* rivestito	**unbeschichtet** *uncoated* non rivestito	
	Teilung *Pitch* Passo [G/Inch]	**Bezeichnung** *Designation* Articolo	**d**	**y**	**z**	**AM15C**	**AK20**	**Klemmhalter** *Tool holder* Corpo fresa
16	28	**16E-UN28TM**	9,52	1,1	16		●	**TMC..-3**
16	24	**16E-UN24TM**	9,52	1,4	14		●	**TMC..-3**
16	20	**16E-UN20TM**	9,52	1,9	11	●	●	**TMC..-3**
16	18	**16E-UN18TM**	9,52	1,9	10	●	●	**TMC..-3**
16	16	**16E-UN16TM**	9,52	1,9	9	●	●	**TMC..-3**
16	14	**16E-UN14TM**	9,52	1,9	8	●	●	**TMC..-3**
16	13	**16E-UN13TM**	9,52	1,9	7		●	**TMC..-3**
16	12	**16E-UN12TM**	9,52	1,9	7	●	●	**TMC..-3**
27	24	**27E-UN24TM**	15,87	1,6	24		●	**TMC..-5**
27	20	**27E-UN20TM**	15,87	1,9	20		●	**TMC..-5**
27	18	**27E-UN18TM**	15,87	1,8	18		●	**TMC..-5**
27	16	**27E-UN16TM**	15,87	1,8	16	●	●	**TMC..-5**
27	14	**27E-UN14TM**	15,87	2,0	14		●	**TMC..-5**
27	13	**27E-UN13TM**	15,87	2,1	13		●	**TMC..-5**
27	12	**27E-UN12TM**	15,87	2,1	12	●	●	**TMC..-5**
27	11	**27E-UN11TM**	15,87	2,3	11		●	**TMC..-5**
27	10	**27E-UN10TM**	15,87	2,3	9	●	●	**TMC..-5**
27	9	**27E-UN9TM**	15,87	3,9	8		●	**TMC..-5**
27	8	**27E-UN8TM**	15,87	4,2	7	●	●	**TMC..-5**
27	7	**27E-UN7TM**	15,87	2,9	6		●	**TMC..-5**
27	6	**27E-UN6TM**	15,87	3,2	5		●	**TMC..-5**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar.
Remark: Indexable inserts are double-sided.
Nota: Gli inserti sono a due lati.

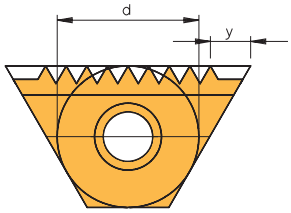
P	○	
M	●	
K		●
N		●
S		
H		

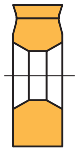
● **Hauptanwendung**
Main application
Applicazione principale

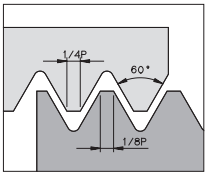
○ **Nebenanwendung**
Secondary application
Applicazione secondaria

6

Innengewinde
Internal threading
Filettatura interna







l	Teilung *Pitch* Passo [G/Inch]	Bezeichnung *Designation* Articolo	d	y	z	Sorten / *Grades* / Qualità: beschichtet *coated* rivestito AM15C	Sorten / *Grades* / Qualità: unbeschichtet *uncoated* non rivestito AK20	Klemmhalter *Tool holder* Corpo fresa
11	28	**11I-UN28TM**	6,35	1,0	11		●	**TMC..-2**
11	24	**11I-UN24TM**	6,35	1,3	9		●	**TMC..-2**
11	20	**11I-UN20TM**	6,35	1,7	8		●	**TMC..-2**
11	16	**11I-UN16TM**	6,35	1,9	6		●	**TMC..-2**
16	32	**16I-UN32TM**	9,52	0,7	19		●	**TMC..-3**
16	28	**16I-UN28TM**	9,52	1,4	16		●	**TMC..-3**
16	24	**16I-UN24TM**	9,52	1,4	14	●	●	**TMC..-3**
16	20	**16I-UN20TM**	9,52	1,9	11	●	●	**TMC..-3**
16	18	**16I-UN18TM**	9,52	1,9	10		●	**TMC..-3**
16	16	**16I-UN16TM**	9,52	1,9	9	●	●	**TMC..-3**
16	14	**16I-UN14TM**	9,52	1,9	8		●	**TMC..-3**
16	13	**16I-UN13TM**	9,52	1,9	7		●	**TMC..-3**
16	12	**16I-UN12TM**	9,52	1,9	7	●	●	**TMC..-3**
27	24	**27I-UN24TM**	15,87	1,6	24		●	**TMC..-5**
27	20	**27I-UN20TM**	15,87	1,9	20		●	**TMC..-5**
27	18	**27I-UN18TM**	15,87	1,8	18		●	**TMC..-5**
27	16	**27I-UN16TM**	15,87	1,8	16		●	**TMC..-5**
27	14	**27I-UN14TM**	15,87	2,0	14		●	**TMC..-5**
27	13	**27I-UN13TM**	15,87	2,1	13		●	**TMC..-5**
27	12	**27I-UN12TM**	15,87	2,1	12		●	**TMC..-5**
27	11	**27I-UN11TM**	15,87	2,3	11	●	●	**TMC..-5**
27	10	**27I-UN10TM**	15,87	3,6	10	●	●	**TMC..-5**
27	9	**27I-UN9TM**	15,87	3,9	8		●	**TMC..-5**
27	8	**27I-UN8TM**	15,87	4,2	7	●	●	**TMC..-5**
27	7	**27I-UN7TM**	15,87	4,8	7		●	**TMC..-5**
27	6	**27I-UN6TM**	15,87	4,8	6		●	**TMC..-5**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar.
Remark: Indexable inserts are double-sided.
Nota: Gli inserti sono a due lati.

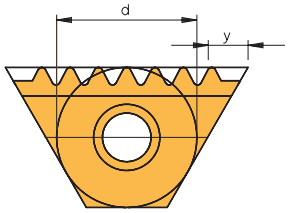
	AM15C	AK20
P	○	
M	●	
K		●
N		●
S		
H		

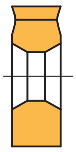
● **Hauptanwendung**
Main application
Applicazione principale

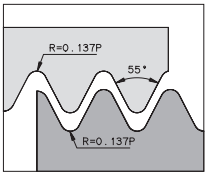
○ **Nebenanwendung**
Secondary application
Applicazione secondaria

Außen- und Innengewinde

External and internal threading
Filettatura interna ed esterna







	Teilung *Pitch* Passo [G/Inch]	Bezeichnung *Designation* Articolo	d	y	z	Sorten / *Grades* / Qualità: beschichtet *coated* rivestito AM15C	beschichtet *coated* rivestito AL100	unbeschichtet *uncoated* non rivestito AK20	Klemmhalter *Tool holder* Corpo fresa
11	14	**11EI-W14TM**	6,35	1,9	5		●		**TMC..-2**
16	24	**16EI-W24TM**	9,52	1,4	14			●	**TMC..-3**
16	20	**16EI-W20TM**	9,52	1,9	11			●	**TMC..-3**
16	19	**16EI-W19TM**	9,52	1,6	11	●		●	**TMC..-3**
16	18	**16EI-W18TM**	9,52	1,9	10			●	**TMC..-3**
16	16	**16EI-W16TM**	9,52	1,9	9			●	**TMC..-3**
16	14	**16EI-W14TM**	9,52	1,9	8			●	**TMC..-3**
16	12	**16EI-W12TM**	9,52	1,9	7	●		●	**TMC..-3**
16	11	**16EI-W11TM**	9,52	2,5	6		●	●	**TMC..-3**
27	16	**27EI-W16TM**	15,87	1,8	16			●	**TMC..-5**
27	14	**27EI-W14TM**	15,87	2,0	14	●		●	**TMC..-5**
27	12	**27EI-W12TM**	15,87	3,2	11	●		●	**TMC..-5**
27	11	**27EI-W11TM**	15,87	3,4	10			●	**TMC..-5**
27	10	**27EI-W10TM**	15,87	2,3	10			●	**TMC..-5**
27	9	**27EI-W9TM**	15,87	3,9	8			●	**TMC..-5**
27	8	**27EI-W8TM**	15,87	4,2	7			●	**TMC..-5**
27	7	**27EI-W7TM**	15,87	4,7	6			●	**TMC..-5**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar.
Remark: Indexable inserts are double-sided.
Nota: Gli inserti sono a due lati.

	AM15C	AL100	AK20
P	○	●	
M	●	●	
K		○	●
N			●
S		○	
H			

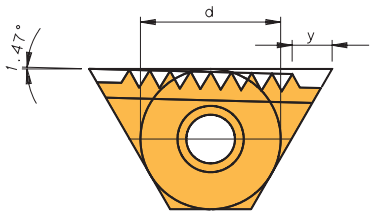
● **Hauptanwendung**
Main application
Applicazione principale

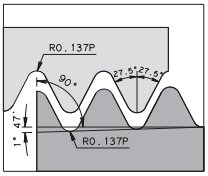
○ **Nebenanwendung**
Secondary application
Applicazione secondaria

6

Außen- und Innengewinde

External and internal threading
Filettatura interna ed esterna





	Teilung *Pitch* Passo [G/Inch]	Bezeichnung *Designation* Articolo	d	y	z	Nenn-Rohr-Ø Nominal pipe-Ø D min foro	Sorten / *Grades* / Qualità: beschichtet *coated* rivestito AM15C	Sorten / *Grades* / Qualità: unbeschichtet *uncoated* non rivestito AK20	Klemmhalter *Tool holder* Corpo fresa
16	14	**16EI-BSPT14TM**	9,52	1,9	8	$^1/_2$", $^3/_4$"	●	●	**TMNC 16-3 R/L**
16	11	**16EI-BSPT11TM**	9,52	2,5	6	1", 1$^1/_4$"	●	●	**TMNC 20-3 R/L**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar.
Remark: Indexable inserts are double-sided.
Nota: Gli inserti sono a due lati.

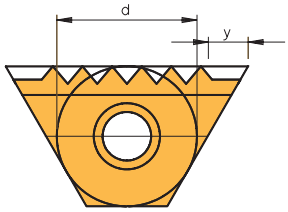
P	○	
M	●	
K		●
N		●
S		
H		

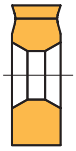
● **Hauptanwendung**
Main application
Applicazione principale

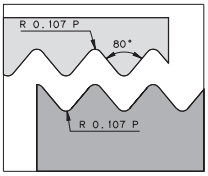
○ **Nebenanwendung**
Secondary application
Applicazione secondaria

6

Außen- und Innengewinde
External and internal threading
Filettatura interna ed esterna







l	Teilung *Pitch* Passo [G/Inch]	Bezeichnung *Designation* Articolo	d	y	z	Sorten / *Grades* / Qualità: beschichtet *coated* rivestito AM15C	Sorten / *Grades* / Qualità: unbeschichtet *uncoated* non rivestito AK20	Klemmhalter *Tool holder* Corpo fresa
16	20	**16EI-PG20TM**	9,52	1,65	11	●	●	**TMC..-3**
16	18	**16EI-PG18TM**	9,52	1,65	10	●	●	**TMC..-3**
16	16	**16EI-PG16TM**	9,52	1,64	9	●	●	**TMC..-3**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar.
Remark: Indexable inserts are double-sided.
Nota: Gli inserti sono a due lati.

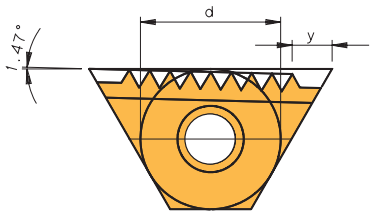
	AM15C	AK20
P	○	
M	●	
K		●
N		●
S		
H		

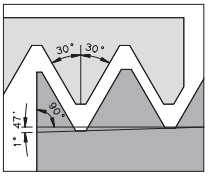
● **Hauptanwendung**
Main application
Applicazione principale

○ **Nebenanwendung**
Secondary application
Applicazione secondaria

Außen- und Innengewinde

External and internal threading
Filettatura interna ed esterna





	Teilung *Pitch* Passo [G/Inch]	Bezeichnung *Designation* Articolo	d	y	z	Nenn-Rohr-Ø Nominal pipe-Ø D min foro	Sorten / *Grades* / Qualità beschichtet *coated* rivestito AM15C	Sorten / *Grades* / Qualità unbeschichtet *uncoated* non rivestito AK20	Klemmhalter *Tool holder* Corpo fresa
16	14,0	**16EI-NPT14TM**	9,52	1,0	8	$^1/_2$"	●	●	**TMNC 16-3 R/L**
16	11,5	**16EI-NPT11,5TM**	9,52	2,3	6	1", 1$^1/_4$"	●	●	**TMNC 16-3 R/L**

Hinweis: Wendeschneidplatten sind doppelseitig einsetzbar.
Remark: Indexable inserts are double-sided.
Nota: Gli inserti sono a due lati.

	AM15C	AK20
P	○	
M	●	
K		●
N		●
S		
H		

● **Hauptanwendung**
Main application
Applicazione principale

○ **Nebenanwendung**
Secondary application
Applicazione secondaria

Kleinster Bohrungsdurchmesser / *Minimal bore diameter* / Diametro di foro minimo

Um beim Fräsen von Innengewinde im Rahmen der erlaubten Profilverzerrung zu bleiben, gibt die nachfolgende Tabelle den kleinsten Bohrungsdurchmesser (Funktion von Steigung und Gewindefräser) an.

Minimum bore diameters for thread milling (if milling cutter is used within this diameter range accurate thread profiles are produced).

In caso di fresatura di un filetto interno per rimanere nei limiti di deformazione consentiti, la seguente tabella indica il diametro minimo di foro (funzione di pendenza/ascesa e fresa filettata).

Steigung / *Pitch* / Passo [mm]	0,50	0,60	0,70	0,75	0,80	1,00	1,25	1,50	2,00	2,50	3,00	3,50	4,00	4,50	6,00
[G/Inch]	48	44	36		32	24	20	16	12	10	8	7	6		
Bezeichnung *Designation* Articolo / D_{min} [mm]	**Kleinster Bohrungsdurchmesser** *Minimal bore diameter* Diametro di foro minimo **[mm]**														
TMMC..-6,0 9,0	9,5			10,0		10,7	11,4	12,0							
TMC..-2 11,5	12,0			12,5		13,2	13,9	14,5							
TMNC 16-3 15,5	16,0			16,5		17,2	17,9	18,5	19,5						
TMC 16-3 17,0	17,6			18,2		19,0	19,6	20,0	21,0						
TMNC 20-3 19,0	19,7			20,4		21,0	21,6	22,0	23,0						
TMC 20-3 20,0	20,7			21,4		22,0	22,6	23,0	24,0						
TM.. 25-5 30,0	30,7			31,4		32,0	32,8	33,5	34,6	36,6	39,0	42,0	45,0	48,0	
TM.. 32-5 37,0	38,0			38,6		39,5	40,4	41,0	42,0	44,0	46,5	49,0	52,0	55,5	

Beispiel:
Fräsen Innengewinde ISO-Metrisch mit Wendeschneidplatte 16I-ISO1, 25TM, Bohrungsdurchmesser = 21,5 mm.
Zwei Klemmhalter stehen zur Verfügung:
TMC 16–3 D_{min} = 17 mm **Lt. Tabelle kleinster Bohrungsdurchmesser 19,6 mm, d. h. Gewindefräser ist zu verwenden.**
TMC 20–3 D_{min} = 20 mm **Lt. Tabelle kleinster Bohrungsdurchmesser 22,6 mm, d. h. Gewindefräser kann nicht verwendet werden. (Durchmesser zu groß).**

Example:
Milling of an internal thread ISO-metric with indexable insert 16I-ISO1, 25TM, Bore diameter = 21.5 mm.
Two milling cutters are available:
TMC 16–3 D_{min} = 17 mm *According to above table minimum bore diameter 19.6 mm, milling cutter can be used.*
TMC 20–3 D_{min} = 20 mm *According to above table minimum bore diameter 22.6 mm, milling cutter can´t be used. (Diameter to big).*

Esempio:
Filetto interno della fresa ISO-metrico con inserti 16I-ISO1, 25TM, diametro del foro 21,5 mm.
Sono disponibili 2 frese:
TMC 16–3 D_{min} = 17 mm In riferimento alla tabella qui sopra il diametro di foro minimo è 19,6 mm, significa che la fresa filettata può essere usata.
TMC 20–3 D_{min} = 20 mm In riferimento alla tabella qui sopra il diametro di foro minimo è 22,6 mm, significa che la fresa filettata non può essere usata. (Il diametro è troppo grande).

ARNO-Toleranzklassen / *ARNO-tolerance* / ARNO Classe tolleranza

Normbezeichnung *Standard designation* Identificazione standard	**Norm** *DIN-Standard* Norma	**Toleranzklasse** *Tolerance* Classe tolleranza
ISO	R262 (DIN 13)	6g / 6H
UN	ANSI B 1.1.74	2A / 2B
UNJ	MIL - S - 8879A	3A / 3B
BSW, BSP	B.S. 84: 1956, DIN 259, ISO 228/A: 1982	Medium Class A
BSPT	B.S. 21: 1985	Standard BSPT
NPT	USAS B2.1: 1968	Standard NPT
NPTF	ANSI B 1.20.3 - 1976	Standard
PG	DIN 40430	Standard
TR	DIN 103	7e / 7H
ACME	ANSI B1/5: 1988	3G