



# 6

## Gewindefräsen

- Gewindearten
- Gewindefräsen – Übersicht
- Trägerwerkzeuge
- Wendschneidplatten

## Thread milling

- *Insert preselection*
- *Thread Milling – Program overview*
- *HOLDERS*
- *Indexable inserts*

## Fresatura per filettatura

- Tipi di filettature
- Fresatura per filettatura – Gamma prodotti
- Corpi fresa
- Inserti

252 – 254

255

256 – 258

260 – 269

# 6

Kennbuchstabe	Kurzbezeichnung Beispiel	Benennung	Norm	Zur Verfügung stehende Gewindeprofile
<b>M</b>	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	Fußverschraubung, außen	DIN 6630	
	DIN 158 - M 30 x 2 keg	metrisch kegeliges Außengewinde	DIN 158	Auf Anfrage
<b>G</b>	G 1½	Zylindrisches Rohrgewinde, nicht im Gewinde dichtend, Innengewinde	DIN ISO 228 T1	Whitworth Rohrgewinde BSW, BSP
	G 1½ A	Außengewinde	DIN ISO 228 T1	
<b>Rp</b>	DIN 2999 - Rp ½ DIN 3858 - Rp ⅛	Zylindrisches Rohrgewinde, im Gewinde dichtend, Innengewinde	DIN 2999 T1 DIN 3858	Whitworth Rohrgewinde BSW, BSP
<b>R</b>	DIN 2999 - R ½ DIN 3858 - R ⅛ - 1	kegeliges Rohrgewinde, im Gewinde dichtend, Außengewinde	DIN 2999 T1 DIN 3858	Kegeliges Rohrgewinde BSPT
<b>Tr</b>	Tr 40 x 7	Metrisches ISO-Trapez- gewinde, allgemein	DIN 103 T1-8	Auf Anfrage
<b>W</b>	DIN 477 - W 21,8 x ⅛	Zylindrisches Whitworth-Gewinde	DIN 477 T1	Whitworth Rohrgewinde BSW, BSP
	DIN 477 - W 28,8 x ⅛ keg	Kegeliges Whitworth-Gewinde		Auf Anfrage
<b>Pg</b>	DIN 40430 - Pg 21	Stahlpanzerrohrgewinde	DIN 40430	Stahlpanzerrohrgewinde DIN 40430
<b>UN</b>	¼ - 20 UNC - 2A	Amerikanisches ISO-Zollgewinde Einheitsgewinde, grob		Amerikanisches ISO-Zollgewinde UN
	¼ - 28 UNF - 3A	Einheitsgewinde, fein		
<b>UNJ</b>	¼ - 28 UNJ - 3A	Luftfahrtgewinde		Luftfahrtgewinde UNJ
<b>NPT</b>	⅜ - 18 NPT	Kegeliges Rohrgewinde		Kegeliges Rohrgewinde NPT
<b>NPTF</b>	⅛ - 27 NPTF - 1	Kegeliges Feinrohrgewinde		Kegeliges Feinrohrgewinde NPTF
<b>ACME</b>	1¾ - 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
<b>M</b>	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
<b>G</b>	G 1½	Cylindrical pipe thread, no sealing thread, internal thread	DIN ISO 228 T1	Whitworth pipe thread BSW, BSP
	G 1½ A	external thread	DIN ISO 228 T1	
<b>Rp</b>	DIN 2999 - Rp ½ DIN 3858 - Rp ⅛	Cylindrical pipe thread, sealing thread, internal thread	DIN 2999 T1 DIN 3858	Whitworth pipe thread BSW, BSP
<b>R</b>	DIN 2999 - R ½ DIN 3858 - R ⅛ - 1	Tapered pipe thread, sealing thread, external thread	DIN 2999 T1 DIN 3858	Tapered pipe thread BSPT
<b>Tr</b>	Tr 40 x 7	ISO-Trapezoidal thread, general	DIN 103 T1-8	On request
<b>W</b>	DIN 477 - W 21,8 x ⅛	Cylindrical Whitworth thread	DIN 477 T1	Whitworth pipe thread BSW, BSP
	DIN 477 - W 28,8 x ⅛ keg	Tapered Whitworth thread		On request
<b>Pg</b>	DIN 40430 - Pg 21	Pg-thread	DIN 40430	Pg-thread DIN 40430
<b>UN</b>	¼ - 20 UNC - 2A	American UN-thread coarse pitch		American UN-thread
	¼ - 28 UNF - 3A	fine pitch		
<b>UNJ</b>	¼ - 28 UNJ - 3A	Aerospace thread		Aerospace thread UNJ
<b>NPT</b>	⅜ - 18 NPT	Tapered pipe thread		Tapered pipe thread NPT
<b>NPTF</b>	⅛ - 27 NPTF - 1	Tapered fine pitch pipe thread		Tapered fine pipe thread NPTF
<b>ACME</b>	1¾ - 4 ACME - 2G	American trapezoidal thread		On request

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

codice identificativo	Denominazione esempio	Descrizione	Norma	Tipologie di inserti disponibili
<b>M</b>	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
<b>G</b>	G 1½	Filettatura cilindrica per raccordi, filettatura a tenuta, filettatura interna	DIN ISO 228 T1	Filetto tubi Whitworth BSW, BSP
	G 1½ A	Esterna conica	DIN ISO 228 T1	
<b>Rp</b>	DIN 2999 - Rp ½ DIN 3858 - Rp ⅛	Filettatura cilindrica per raccordi, filetto a tenuta, filettatura interna	DIN 2999 T1 DIN 3858	Filetto tubi Whitworth BSW, BSP
<b>R</b>	DIN 2999 - R ½ DIN 3858 - R ⅛ - 1	Filettatura conica per raccordi, filetto a tenuta, Esterna conica	DIN 2999 T1 DIN 3858	Filetto conico tubi BSPT
<b>Tr</b>	Tr 40 x 7	Filettatura Metrica Trapezoidale, normale	DIN 103 T1-8	A richiesta
<b>W</b>	DIN 477 - W 21,8 x ⅛	Filettatura cilindrica Whitworth	DIN 477 T1	Filetto tubi Whitworth BSW, BSP
	DIN 477 - W 28,8 x ⅛ conica	Filettatura conica Whitworth		A richiesta
<b>Pg</b>	DIN 40430 - Pg 21	Filettatura PG	DIN 40430	Filettatura pg DIN 40430
<b>UN</b>	¼ - 20 UNC - 2A	Filettatura a norma americana UN, filettatura normale, passo grosso		Filettatura a norma standard americana UN
	¼ - 28 UNF - 3A	Filettatura a norma americana UN, filettatura normale, passo grosso		
<b>UNJ</b>	¼ - 28 UNJ - 3A	Filettatura aeronautica		Filettatura aeronautica UNJ
<b>NPT</b>	⅜ - 18 NPT	Filetto conico tubi		Filetto conico tubi NPT
<b>NPTF</b>	⅛ - 27 NPTF - 1	Filettatura tubi conica a passo fine		Filettatura tubi conica a passo fine NPTF
<b>ACME</b>	1¾ -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

We have a passion for precision.

**Wendeschneidplatten**  
Indexable inserts  
Inserti

Seite / Page / Pagina

**Klemmhalter**  
Tool holders  
Corpi fresa

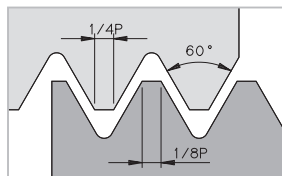
Seite / Page / Pagina

## Metrisch

*Metric*

Metrica

**ISO**



262 – 263

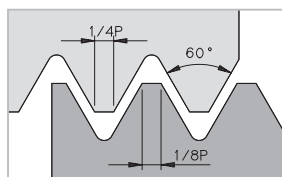
256 – 257

## Amerikanisches ISO-Zollgewinde

*American thread*

Filettatura norme americane

**UN**



264 – 265

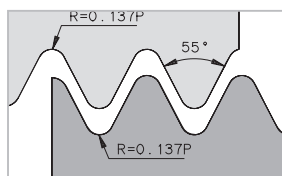
257

## Whitworth Rohrgewinde

*Whitworth pipe thread*

Filettatura tubi Whitworth

**BSW, BSP**



266

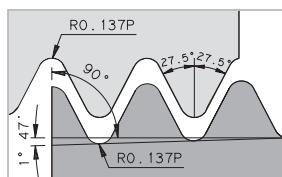
257

## Kegeliges Rohrgewinde

*Tapered pipe thread*

Filettatura conica tubi

**BSPT**



267

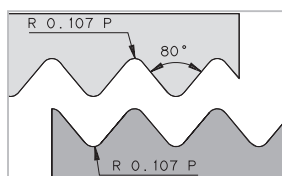
258

## Stahlpanzerrohrgewinde

*PG-thread*

Filettatura PG

**DIN 40430**



268

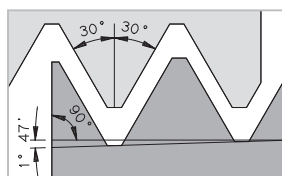
257

## Kegeliges Rohrgewinde

*Tapered pipe thread*

Filettatura conica tubi

**NPT**



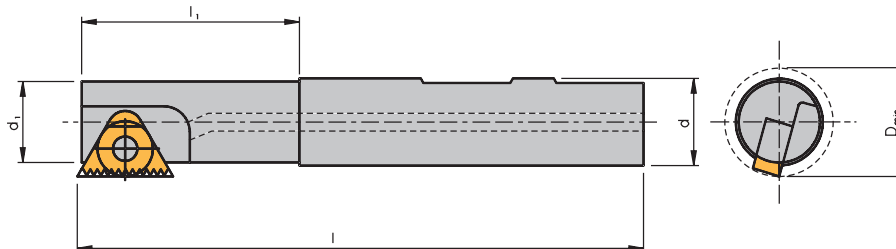
269

258


## 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



### Halter / Holder / Utensile


	Bezeichnung Designation Articolo	l	l <sub>1</sub>	d	d <sub>1</sub>	D <sub>min</sub>
10,4	<b>TMMC 12-6,0</b>	69	12	12	6,8	9
10,4	<b>TMMC 20-6,0</b>	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.

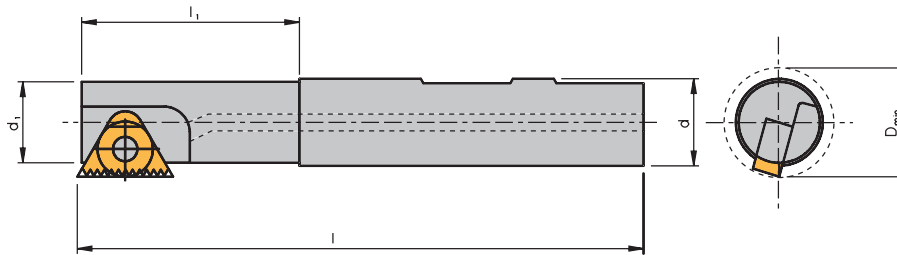
### Ersatzteile / Spare parts / Ricambi

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

## Standard-Gewindefräser

Standard thread milling cutter

Fresa a filettare standard



## Halter / Holder / Utensile

	Bezeichnung Designation Articolo	l	l <sub>1</sub>	d	d <sub>1</sub>	D <sub>min</sub>
11	<b>TMC 12-2</b>	70	12	12	8,9	11,5
11	<b>TMC 20-2</b>	85	20	20	8,9	11,5
16	<b>TMC 16-3</b>	90	22	16	13,6	17,0
16	<b>TMC 20-3</b>	95	43	20	16,6	20,0
27	<b>TMC 25-5</b>	110	52	25	24,0	30,0
27	<b>TMC 32-5</b>	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.

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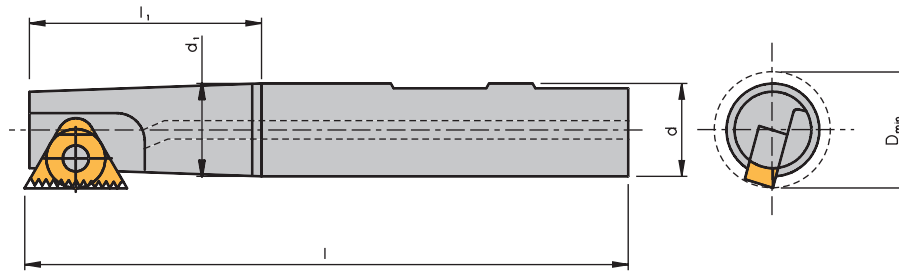
## Ersatzteile / Spare parts / Ricambi

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

## Gewindefräser für kegliche Gewinde

Thread milling cutter for tapered threads

Fresa a filettare per filetti conici



### Halter / Holder / Utensile

	Bezeichnung Designation Articolo	l	l <sub>1</sub>	d	d <sub>1</sub>	D <sub>min</sub>
16	<b>TMNC 16-3L</b>	80	22	16	12,5	15,5
16	<b>TMNC 16-3R</b>	80	22	16	12,5	15,5
16	<b>TMNC 20-3R</b>	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.



## ARNO® VOLLHARTMETALL GEWINDEFÄSER

**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.

**Weitere Vollhartmetall-Fräser finden Sie im aktuellen Tiefstpreiskatalog oder unter:**

*You will find more solid carbide cutters in our "Special Price" catalogue:*

La gamma completa di frese in MDI è disponibile sul catalogo dedicato "Catalogo Promozione" oppure visitando il sito:

**[www.arno.de](http://www.arno.de)**

## 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 Hartzerspannung geeignet.**

*TiAlN coated carbide grade for machining steel, stainless steel, cast and exotic materials such as Hastelloy, 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 Inconel. 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 anti-corrosive.

## 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.**

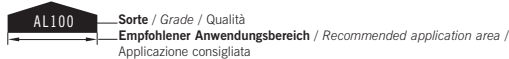
*Machining of non-ferrous materials and grey cast iron at normal cutting speeds. Also suitable for heat-resistant materials. Good cutting edge stability.*

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.

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ISO	Hartmetall beschichtet Carbide coated Metallo duro rivestito	Hartmetall unbeschichtet Carbide uncoated Metallo duro non rivestito	Schneidstoff Cutting material Materiale da taglio	Anwendung Application Parametri	
<b>P</b> <b>Stahl, Stahlguss, langspanender Temperguss</b> <i>Steel, cast steel, malleable iron</i> Acciaio, acciaio da fusione, ghisa malleabile da truciolo lungo	10				
	20	AL100 AM15C			
	30			Zähigkeit Toughness / Tenacità	Vorschub Feed rate / Avanzamento
	40			Verschleißbeständigkeit / Wear resistance / Resistenza all'usura	Schnittgeschwindigkeit Cutting speed / Velocità di taglio
	50				
<b>M</b> <b>Rostfreier Stahl, Stahlguss, Manganstahl, Automatenstahl</b> <i>Stainless steel, cast steel, manganese steel, free cutting steel</i> Acciaio Inossidabile, Acciaio da Fusione, Acciaio al Manganese, Acciaio Automatico	10				
	20	AL100 AM15C			
	30			Zähigkeit Toughness / Tenacità	Vorschub Feed rate / Avanzamento
	40			Verschleißbeständigkeit / Wear resistance / Resistenza all'usura	Schnittgeschwindigkeit Cutting speed / Velocità di taglio
	50				
<b>K</b> <b>Grauguss, Kokillenhartguss, kurzspanender Temperguss</b> <i>Grey cast iron, chilled hard cast iron, short chipping malleable iron</i> Ghisa grigia, ghisa sferoidale, ghisa malleabile a truciolo corto	10				
	20	AL100 AM15C	AK20		
	30			Zähigkeit Toughness / Tenacità	Vorschub Feed rate / Avanzamento
	40			Verschleißbeständigkeit / Wear resistance / Resistenza all'usura	Schnittgeschwindigkeit Cutting speed / Velocità di taglio
	50				
<b>N</b> <b>Aluminium und Al-Legierungen, nichtmetallische Werkstoffe</b> <i>Aluminum and Al-alloys, non-ferrous materials</i> Alluminio e sue leghe, materiali non ferrosi o non metallici	10				
	20	AM7C AM15C	AK20		
	30			Zähigkeit Toughness / Tenacità	Vorschub Feed rate / Avanzamento
	40			Verschleißbeständigkeit / Wear resistance / Resistenza all'usura	Schnittgeschwindigkeit Cutting speed / Velocità di taglio
	50				
<b>S</b> <b>Warmfeste Legierungen, Titanlegierungen</b> <i>High temperature resistant alloys, titanium alloys</i> Leghe refrattarie, leghe esotiche, leghe di titanio	10	AL100	AK20		
	20			Zähigkeit Toughness / Tenacità	Vorschub Feed rate / Avanzamento
	30			Verschleißbeständigkeit / Wear resistance / Resistenza all'usura	Schnittgeschwindigkeit Cutting speed / Velocità di taglio
	40				
	50				
<b>H</b> <b>Gehärteter Stahl, Hartguss</b> <i>Hardened steel, hard cast iron</i> Acciaio temprato, ghisa temprata	10	AL100 AM15C			
	20			Zähigkeit Toughness / Tenacità	Vorschub Feed rate / Avanzamento
	30			Verschleißbeständigkeit / Wear resistance / Resistenza all'usura	Schnittgeschwindigkeit Cutting speed / Velocità di taglio
	40				
	50				

Hauptanwendungsbereich / Main application area / Applicazione principale



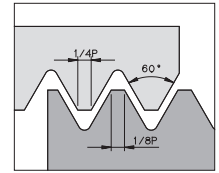
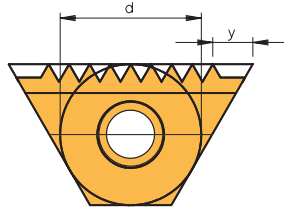
Nebenanwendungsbereich / Secondary application area / Applicazione secondaria



# Außengewinde

External threading  
Filettatura esterna

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Teilung Pitch Passo [mm]	Bezeichnung Designation Articolo	d	y	z	Sorten / Grades / Qualità			Klemmhalter Tool holder Corpo fresa	
					beschichtet coated rivestito		unbeschichtet uncoated non rivestito		
					AMI15C	AL100	AK20		
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: Wendschneidplatten sind doppelseitig einsetzbar.  
Remark: Indexable inserts are double-sided.  
Nota: Gli inserti sono a due lati.

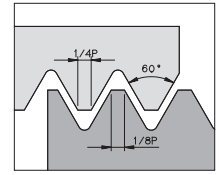
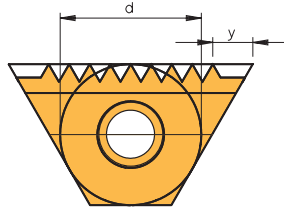
P	○	●
M	●	●
K		○
N		●
S		○
H		


● Hauptanwendung  
Main application  
Applicazione principale  
○ Nebenanwendung  
Secondary application  
Applicazione secondaria

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Innengewinde

Internal threading  
Filettatura interna



 Teilung Pitch Passo [mm]	Bezeichnung Designation Articolo	d	y	z	Sorten / Grades / Qualità			Klemmhalter Tool holder Corpo fresa
					beschichtet coated rivestito		unbeschichtet uncoated non rivestito	
					AM15C	AL100	AK20	
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: Wendschneidplatten sind doppelseitig einsetzbar, außer Wendschneidplatten mit I=10,4 mm – diese sind einseitig einsetzbar.  
 Remark: Indexable inserts are double-sided, except indexable inserts with I=10.4 mm are single sided.  
 Nota: Gli inserti sono a due lati, eccetto gli inserti con I=10,4 mm sono ad un solo lato.

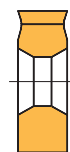
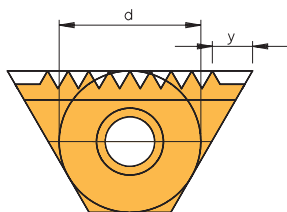
P	○	●
M	●	●
K		○
N		●
S		○
H		

● Hauptanwendung  
Main application  
Applicazione principale  
○ Nebenanwendung  
Secondary application  
Applicazione secondaria

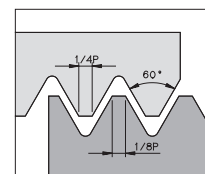
## Außengewinde

External threading

Filettatura esterna



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Teilung Pitch Passo [G/Inch]	Bezeichnung Designation Articolo	d	y	z	Sorten / Grades / Qualità		Klemmhalter Tool holder Corpo fresa	
					beschichtet coated rivestito AM15C	unbeschichtet uncoated non rivestito AK20		
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: Wendschneidplatten 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

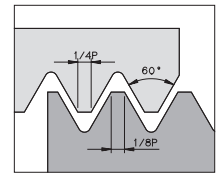
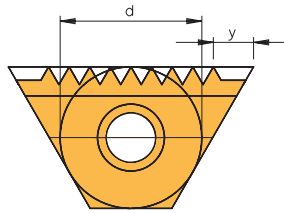
○ Nebenanwendung  
Secondary application  
Applicazione secondaria

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## Innengewinde

Internal threading

Filettatura interna



Teilung Pitch Passo [G/Inch]	Bezeichnung Designation Articolo	d	y	z	Sorten / Grades / Qualità		Klemmhalter Tool holder Corpo fresa	
					beschichtet coated rivestito AM15C	unbeschichtet uncoated non rivestito AK20		
11	28	111-UN28TM	6,35	1,0	11		●	TMC...-2
11	24	111-UN24TM	6,35	1,3	9		●	TMC...-2
11	20	111-UN20TM	6,35	1,7	8		●	TMC...-2
11	16	111-UN16TM	6,35	1,9	6		●	TMC...-2
16	32	161-UN32TM	9,52	0,7	19		●	TMC...-3
16	28	161-UN28TM	9,52	1,4	16		●	TMC...-3
16	24	161-UN24TM	9,52	1,4	14	●	●	TMC...-3
16	20	161-UN20TM	9,52	1,9	11	●	●	TMC...-3
16	18	161-UN18TM	9,52	1,9	10		●	TMC...-3
16	16	161-UN16TM	9,52	1,9	9	●	●	TMC...-3
16	14	161-UN14TM	9,52	1,9	8		●	TMC...-3
16	13	161-UN13TM	9,52	1,9	7		●	TMC...-3
16	12	161-UN12TM	9,52	1,9	7	●	●	TMC...-3
27	24	271-UN24TM	15,87	1,6	24		●	TMC...-5
27	20	271-UN20TM	15,87	1,9	20		●	TMC...-5
27	18	271-UN18TM	15,87	1,8	18		●	TMC...-5
27	16	271-UN16TM	15,87	1,8	16		●	TMC...-5
27	14	271-UN14TM	15,87	2,0	14		●	TMC...-5
27	13	271-UN13TM	15,87	2,1	13		●	TMC...-5
27	12	271-UN12TM	15,87	2,1	12		●	TMC...-5
27	11	271-UN11TM	15,87	2,3	11	●	●	TMC...-5
27	10	271-UN10TM	15,87	3,6	10	●	●	TMC...-5
27	9	271-UN9TM	15,87	3,9	8		●	TMC...-5
27	8	271-UN8TM	15,87	4,2	7	●	●	TMC...-5
27	7	271-UN7TM	15,87	4,8	7		●	TMC...-5
27	6	271-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.

P	○
M	●
K	
N	●
S	
H	

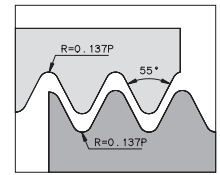
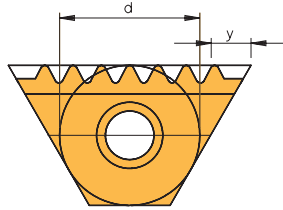
● Hauptanwendung  
Main application  
Applicazione principale

○ Nebenanwendung  
Secondary application  
Applicazione secondaria

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## 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			Klemmhalter Tool holder Corpo fresa	
					beschichtet coated rivestito		unbeschichtet uncoated non rivestito		
					AMI15C	AL100	AK20		
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.

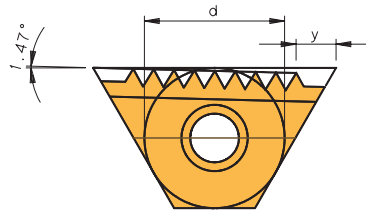
	AMI15C	AL100	AK20
P	○	●	
M	●	●	
K		○	●
N			●
S		○	
H			

● Hauptanwendung  
Main application  
Applicazione principale  
○ Nebenanwendung  
Secondary application  
Applicazione secondaria

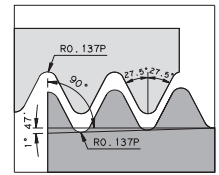


## Außen- und Innengewinde

External and internal threading  
Filettatura interna ed esterna



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Teilung Pitch Passo [G/Inch]	Bezeichnung Designation Articolo	d	y	z	Nenn-Rohr-Ø Nominal pipe-Ø D min foro	Sorten / Grades / Qualità		Klemmhalter Tool holder Corpo fresa
						beschichtet coated rivestito AM15C	unbeschichtet uncoated non rivestito AK20	
16	14 <b>16EI-BSPT14TM</b>	9,52	1,9	8	1/2", 3/4"	●	●	<b>TMNC 16-3 R/L</b>
16	11 <b>16EI-BSPT11TM</b>	9,52	2,5	6	1", 1 1/4"	●	●	<b>TMNC 20-3 R/L</b>

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

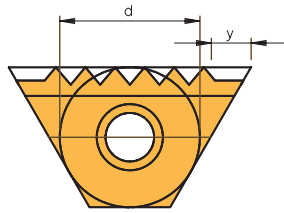
P	○
M	●
K	●
N	●
S	
H	

● Hauptanwendung  
Main application  
Applicazione principale

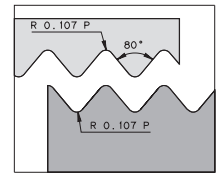
○ Nebenanwendung  
Secondary application  
Applicazione secondaria

## Außen- und Innengewinde

External and internal threading  
Filettatura interna ed esterna



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

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

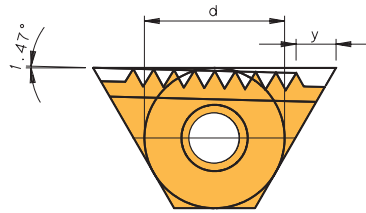
Sorten / Grades / Qualità	beschichtet coated rivestito	unbeschichtet uncoated non rivestito
P	○	
M	●	
K		●
N		●
S		
H		

● Hauptanwendung  
Main application  
Applicazione principale

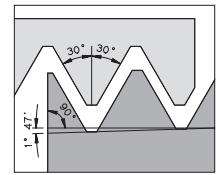
○ Nebenanwendung  
Secondary application  
Applicazione secondaria

## Außen- und Innengewinde

External and internal threading  
Filettatura interna ed esterna



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Teilung Pitch Passo [G/Inch]	Bezeichnung Designation Articolo	d	y	z	Nenn-Rohr-Ø Nominal pipe-Ø D min foro	Sorten / Grades / Qualità		Klemmhalter Tool holder Corpo fresa
						beschichtet coated rivestito AM15C	unbeschichtet uncoated non rivestito AK20	
16	14,0 <b>16EI-NPT14TM</b>	9,52	1,0	8	1/2"	●	●	<b>TMNC 16-3 R/L</b>
16	11,5 <b>16EI-NPT11,5TM</b>	9,52	2,3	6	1", 1 1/4"	●	●	<b>TMNC 16-3 R/L</b>

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

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## 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] [G/Inch]	0,50 48	0,60 44	0,70 36	0,75	0,80 32	1,00 24	1,25 20	1,50 16	2,00 12	2,50 10	3,00 8	3,50 7	4,00 6	4,50	6,00		
																Kleinster Bohrungsdurchmesser Minimal bore diameter Diametro di foro minimo [mm]	
Bezeichnung Designation Articolo	D <sub>min</sub> [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<sub>min</sub> = 17 mm

Lt. Tabelle kleinster Bohrungsdurchmesser 19,6 mm, d. h. Gewindefräser ist zu verwenden.

TMC 20-3 D<sub>min</sub> = 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<sub>min</sub> = 17 mm

According to above table minimum bore diameter 19.6 mm, milling cutter can be used.

TMC 20-3 D<sub>min</sub> = 20 mm

According to above table minimum bore diameter 22.6 mm, milling cutter can't be used. (Diameter too 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<sub>min</sub> = 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<sub>min</sub> = 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