

MillLine

THREADMILLING

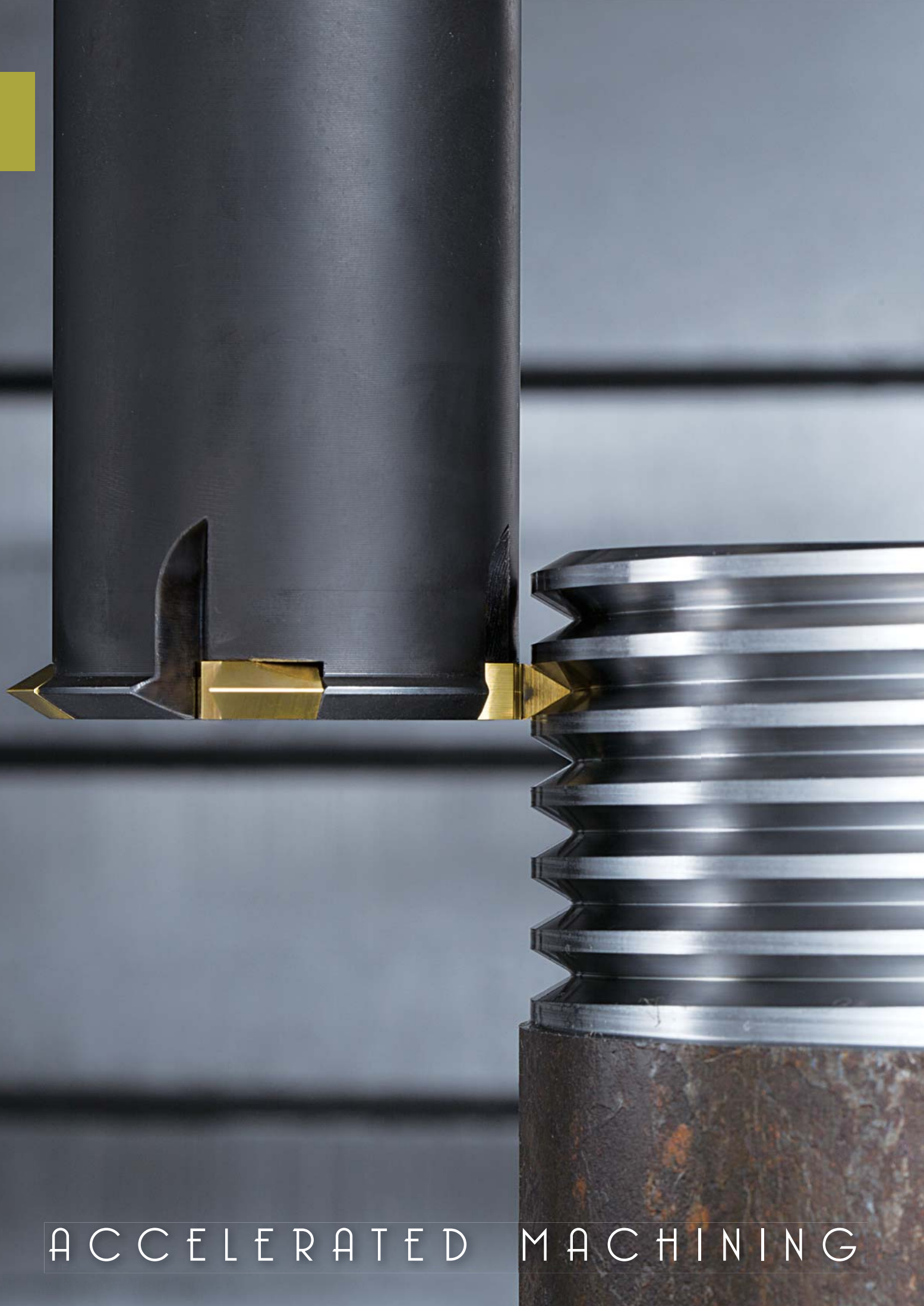
www.tungaloy.com

Tungaloy Report No. 514-G

THREAD-MILLING

"Tap" into high productivity and cost efficiency **through flexibility**





ACCELERATED MACHINING



THREADMILLING

TUNGALOY



A vast range of diameters are available in the new ThreadMilling line of economical head-changeable and indexable tools **to meet all customer's needs**

MillLine

Thread milling tools



SOLIDTHREAD

Solid threading tool series for machining small diameters, such as M1x0.25 and 0-80UNF.

[p.5](#)



TUNGMEISTER

Head-changeable milling tool for less down-time than a solid tapping tool.

[p.20](#)

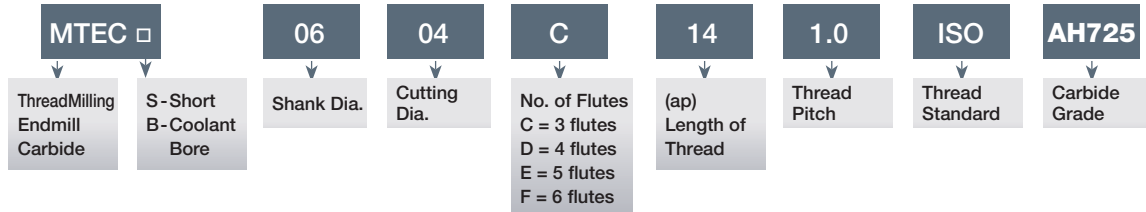


Indexable type

Able to incorporate multiple inserts for various threading diameters and pitches, allowing tool integration and reduced tool cost.

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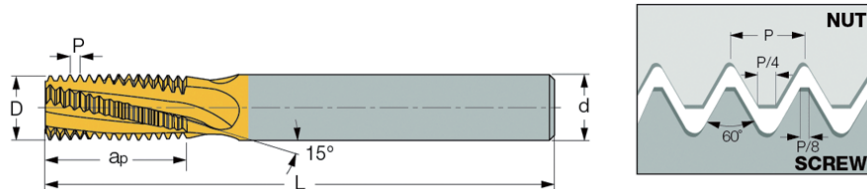
Designation System for Solid Carbide Endmills



ISO metric

MTEC-ISO

Solid Carbide Internal Threading Endmills for ISO Thread Profile

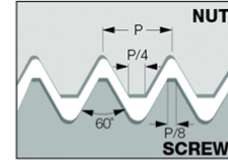
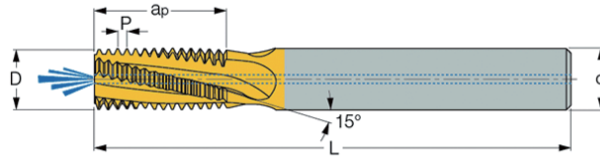


Designation	Pitch	Application range		d	D	Number of flutes	ap	L	Oil hole	Grade
		Fine	Coarse							
MTEC 06038C10 0.5ISO	0.5	-	≥5	6	3.8	3	10.3	58	Without	AH725
MTEC 06022C5 0.5ISO	0.5	M3	≥4	6	2.2	3	5.3	58	Without	AH725
MTEC 06031C7 0.7ISO	0.7	M4	≥5	6	3.1	3	7.4	58	Without	AH725
MTEC 06045C10 0.75ISO	0.75	-	≥6	6	4.5	3	10	58	Without	AH725
MTEC 06036C9 0.8ISO	0.8	M5	≥6	6	3.6	3	9.2	58	Without	AH725
MTEC 0606C12 1.0ISO	1	-	≥9	6	6	3	12.5	58	Without	AH725
MTEC 0808D16 1.0ISO	1	-	≥10	8	8	4	16.5	64	Without	AH725
MTEC 0604C10 1.0ISO	1	M6	≥7	6	4	3	10.5	58	Without	AH725
MTEC 0604C14 1.0ISO	1	M6	≥7	6	4	3	14.5	58	Without	AH725
MTEC 0605C14 1.25ISO	1.25	M8	≥10	6	5	3	14.4	58	Without	AH725
MTEC 0605C19 1.25ISO	1.25	M8	≥10	6	5	3	19.4	58	Without	AH725
MTEC 1010D21 1.5ISO	1.5	-	≥14	10	10	4	21.8	73	Without	AH725
MTEC 1616F33 1.5ISO	1.5	-	≥20	16	16	6	33.8	105	Without	AH725
MTEC 0807C17 1.5ISO	1.5	M10	≥12	8	7	3	17.3	64	Without	AH725
MTEC 0807C24 1.5ISO	1.5	M10	≥12	8	7	3	24.8	76	Without	AH725
MTEC 0808C20 1.75ISO	1.75	M12	≥14	8	8	3	20.1	64	Without	AH725
MTEC 0808C28 1.75ISO	1.75	M12	≥14	8	8	3	28.9	76	Without	AH725
MTEC 1212D27 2.0ISO	2	-	≥18	12	12	4	27	84	Without	AH725
MTEC 2020F41 2.0ISO	2	-	≥26	20	20	6	41	105	Without	AH725
MTEC 1010C27 2.0ISO	2	M16	≥17	10	10	3	27	73	Without	AH725
MTEC 1010C39 2.0ISO	2	M16	≥17	10	10	3	39	105	Without	AH725
MTEC 1414D33 2.5ISO	2.5	M20	≥22	14	14	4	33.8	84	Without	AH725
MTEC 1414D48 2.5ISO	2.5	M20	≥22	14	14	4	48.8	105	Without	AH725
MTEC 1616C40 3.0ISO	3	M24	≥25	16	16	3	40.5	105	Without	AH725
MTEC 1616C58 3.0ISO	3	M24	≥25	16	16	3	58.5	120	Without	AH725

ISO metric

MTECB-ISO

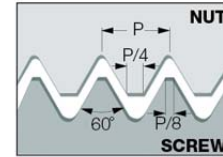
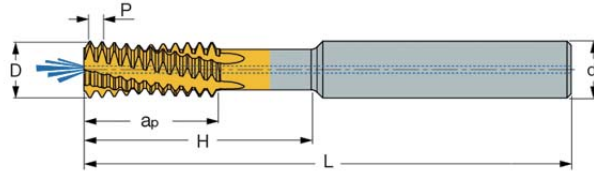
Solid Carbide Internal Threading
Endmills with Coolant Holes
for ISO Thread Profile



Designation	Pitch	Application range		d	D	Number of flutes	ap	L	Oil hole	Grade
		Fine	Coarse							
MTECB 06038C10 0.5ISO	0.5	-	≥5	6	3.8	3	10.3	58	With	AH725
MTECB 06031C7 0.7ISO	0.7	M4	≥5	6	3.1	3	7.4	58	With	AH725
MTECB 06045C10 0.75ISO	0.75	-	≥6	6	4.5	3	10.1	58	With	AH725
MTECB 1010D24 0.75ISO	0.75	-	≥12	10	10	4	24.4	73	With	AH725
MTECB 06038C9 0.8ISO	0.8	M5	≥6	6	3.8	3	9.2	58	With	AH725
MTECB 0606C12 1.0ISO	1	-	≥9	6	6	3	12.5	58	With	AH725
MTECB 0808D16 1.0ISO	1	-	≥10	8	8	4	16.5	64	With	AH725
MTECB 1010D24 1.0ISO	1	-	≥12	10	10	4	24.5	73	With	AH725
MTECB 06046C10 1.0ISO	1	M6	≥7	6	4.6	3	10.5	58	With	AH725
MTECB 06046C14 1.0ISO	1	M6	≥6	6	4.6	3	14.5	58	With	AH725
MTECB 0606C14 1.25ISO	1.25	M8	≥10	6	6	3	14.4	58	With	AH725
MTECB 0606C19 1.25ISO	1.25	M8	≥10	6	6	3	19.4	58	With	AH725
MTECB 1010D21 1.5ISO	1.5	-	≥14	10	10	4	21.8	73	With	AH725
MTECB 1616F33 1.5ISO	1.5	-	≥20	16	16	6	33.8	105	With	AH725
MTECB 1212D26 1.5ISO	1.5	-	≥16	12	12	4	26.3	84	With	AH725
MTECB 08078C17 1.5ISO	1.5	M10	≥12	8	7.8	3	17	64	With	AH725
MTECB 08078C24 1.5ISO	1.5	M10	≥12	8	7.8	3	24.8	76	With	AH725
MTECB 1009C20 1.75ISO	1.75	M12	≥12	10	9	3	20.1	73	With	AH725
MTECB 1009C28 1.75ISO	1.75	M12	≥12	10	9	3	28.9	73	With	AH725
MTECB 1010C27 2.0ISO	2	M14	≥15	10	10	3	27	73	With	AH725
MTECB 12118D27 2.0ISO	2	M16	≥17	12	11.8	4	27	84	With	AH725
MTECB 12118D39 2.0ISO	2	M16	≥17	12	11.8	4	39	105	With	AH725
MTECB 1615E33 2.5ISO	2.5	M20	≥22	16	15	5	33.8	105	With	AH725
MTECB 1615E48 2.5ISO	2.5	M20	≥22	16	15	5	48.8	105	With	AH725
MTECB 2018D58 3.0ISO	3	M24	≥25	20	18	4	58.5	120	With	AH725

MTECQ-ISO

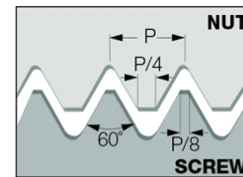
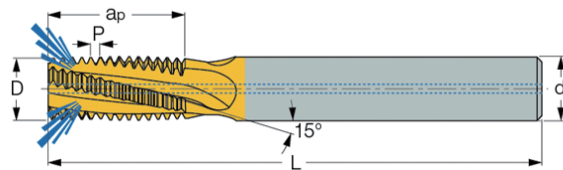
Solid Carbide Threading Endmills with Internal Coolant Holes and a Reduced Diameter Neck for Deep Internal ISO Profile



Designation	Pitch	Application range	d	D	Number of flutes	ap	H	L	Oil hole	Grade
MTECQ 1212D38 1.0ISO	1	≥14	12	12	4	21	38	84	With	AH725
MTECQ 1010D30 1.5ISO	1.5	≥13	10	10	4	18	30	73	With	AH725
MTECQ 2020F56 2.0ISO	2	≥24	20	20	6	34	56	105	With	AH725
MTECQ 2020D45 3.5ISO	3.5	≥26	20	20	4	28	45.5	105	With	AH725

MTECZ-ISO

Solid Carbide Internal Threading Endmills with Coolant Holes Located in the Flutes

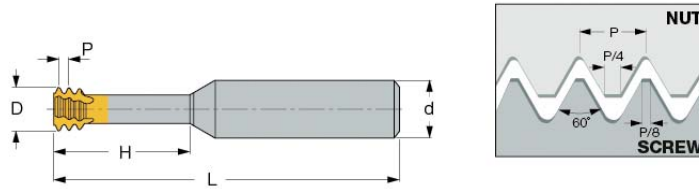


Designation	Pitch	Application range		d	D	Number of flutes	ap	L	Oil hole	Grade
		Fine	Coarse							
MTECZ 0808D16 1.0ISO	1	-	>10	8	8	4	16.5	64	With	AH725
MTECZ 06048C10 1.0ISO	1	M6	>7	6	4.8	3	10.5	58	With	AH725
MTECZ 0606C14 1.25ISO	1.25	M8	>10	6	6	3	14.4	58	With	AH725
MTECZ 0606C19 1.25ISO	1.25	M8	>10	6	6	3	19.4	58	With	AH725
MTECZ 1010D21 1.5ISO	1.5	-	>14	10	10	4	21.8	73	With	AH725
MTECZ 1212D26 1.5ISO	1.5	-	>16	12	12	4	26.3	84	With	AH725
MTECZ 1616E33 1.5ISO	1.5	-	>20	16	16	5	33.8	101	With	AH725
MTECZ 08078C17 1.5ISO	1.5	M10	>12	8	7.8	3	17	64	With	AH725
MTECZ 1009C28 1.75ISO	1.75	M12	>12	10	9	3	28.9	73	With	AH725
MTECZ 1010C27 2.0ISO	2	M14	>15	10	10	3	27	73	With	AH725
MTECZ 12118D27 2.0ISO	2	M16	>17	12	11.8	4	27	84	With	AH725

ISO metric

MTECS-ISO

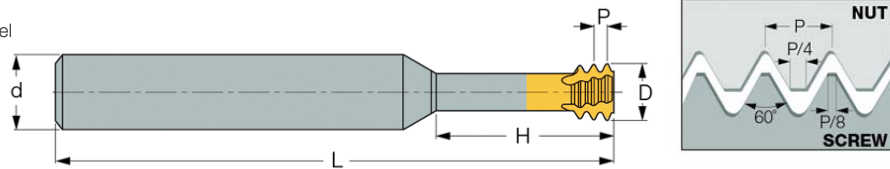
Small Diameter Solid Carbide
Threading Endmills for
Internal ISO Profile



Designation	Pitch	Application range	d	D	Number of flutes	H	L	Oil hole	Grade
MTECS 03007C2 0.25ISO	0.25	M1	3	0.72	3	2.5	39	Without	AH725
MTECS 03009C3 0.25ISO	0.25	M1.2	3	0.9	3	3	39	Without	AH725
MTECS 03011C4 0.3ISO	0.3	M1.4	3	1.05	3	4	39	Without	AH725
MTECS 03012C5 0.35ISO	0.35	M1.6	3	1.2	3	4.8	39	Without	AH725
MTECS 03016C6 0.4ISO	0.4	M2	3	1.53	3	6	39	Without	AH725
MTECS 06016C4 0.4ISO	0.4	M2	6	1.53	3	4.5	58	Without	AH725
MTECS 03017C7 0.45ISO	0.45	M2.2	3	1.65	3	7	39	Without	AH725
MTECS 06017C5 0.45ISO	0.45	M2.2	6	1.65	3	5	58	Without	AH725
MTECS 0602C5 0.45ISO	0.45	M2.5	6	1.95	3	5.5	58	Without	AH725
MTECS 0602C7 0.45ISO	0.45	M2.5	6	1.95	3	7.5	58	Without	AH725
MTECS 06024C6 0.5ISO	0.5	M3	6	2.37	3	6.5	58	Without	AH725
MTECS 06024C9 0.5ISO	0.5	M3	6	2.37	3	9.5	58	Without	AH725
MTECS 06024C9 0.5ISO-L	0.5	M3	6	2.37	3	9.5	105	Without	AH725
MTECS 03024C12 0.5ISO	0.5	M3	3	2.4	3	12.5	39	Without	AH725
MTECS 03024C15 0.5ISO	0.5	M3	3	2.4	3	15.5	39	Without	AH725
MTECS 06054D20 0.5ISO	0.5	M6	6	5.35	4	20	58	Without	AH725
MTECS 06028C10 0.6ISO	0.6	M3.5	6	2.75	3	10.5	58	Without	AH725
MTECS 06028C7 0.6ISO	0.6	M3.5	6	2.75	3	7.5	58	Without	AH725
MTECS 06031C12 0.7ISO	0.7	M4	6	3.1	3	12.5	58	Without	AH725
MTECS 06031C120.7ISO-L	0.7	M4	6	3.1	3	12.5	105	Without	AH725
MTECS 06031C16 0.7ISO	0.7	M4	6	3.1	3	16.7	58	Without	AH725
MTECS 06031C9 0.7ISO	0.7	M4	6	3.1	3	9	58	Without	AH725
MTECS 0808D25 0.75ISO	0.75	M10	8	8	4	25	64	Without	AH725
MTECS 06038C12 0.8ISO	0.8	M5	6	3.8	3	12.5	58	Without	AH725
MTECS 06038C16 0.8ISO	0.8	M5	6	3.8	3	16	58	Without	AH725
MTECS 06038C160.8ISO-L	0.8	M5	6	3.8	3	16	105	Without	AH725
MTECS 06047C14 1.0ISO	1	M6	6	4.65	3	14	58	Without	AH725
MTECS 06047C20 1.0ISO	1	M6	6	4.65	3	20	58	Without	AH725
MTECS 06047C201.0ISO-L	1	M6	6	4.65	3	20	105	Without	AH725
MTECS 0606C18 1.25ISO	1.25	M8	6	6	3	18	58	Without	AH725
MTECS 0606C24 1.25ISO	1.25	M8	6	6	3	24	58	Without	AH725
MTECS 08078C23 1.5ISO	1.5	M10	8	7.8	3	23	64	Without	AH725
MTECS 08078C31 1.5ISO	1.5	M10	8	7.8	3	31.5	64	Without	AH725
MTECS 1009C26 1.75ISO	1.75	M12	10	9	3	26	73	Without	AH725
MTECS 12118D35 2.0ISO	2	M16	12	11.8	4	35	84	Without	AH725
MTECS 12118D50 2.0ISO	2	M16	12	11.8	4	50	105	Without	AH725
MTECS 1615E43 2.5ISO	2.5	M20	16	15	5	43	100	Without	AH725

MTECSH-ISO

Small Diameter Short Left-Hand Cutting
Solid Carbide Internal ISO Profile
Threading Endmills for Hardened Steel

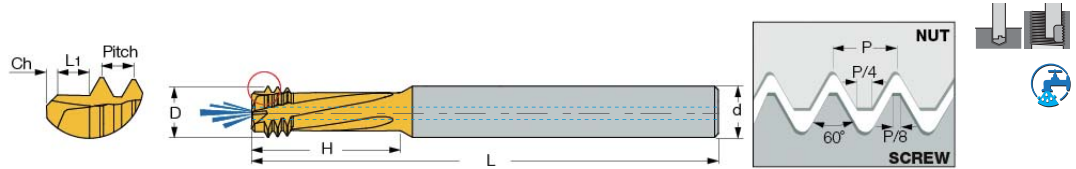


Designation	Pitch	Application range	d	D	Number of flutes	H	L	Oil hole	Grade
MTECSH 03012C5 0.35ISO	0.35	M1.6	3	1.2	3	4.8	39	Without	AH750
MTECSH 03016C6 0.4ISO	0.4	M2	3	1.55	3	6	39	Without	AH750
MTECSH 06016C4 0.4ISO	0.4	M2	6	1.55	3	4.5	58	Without	AH750
MTECSH 06017C5 0.45ISO	0.45	M2.2	6	1.65	3	5	58	Without	AH750
MTECSH 0602C5 0.45ISO	0.45	M2.5	6	1.95	3	5.5	58	Without	AH750
MTECSH 0602C7 0.45ISO	0.45	M2.5	6	1.95	3	7.5	58	Without	AH750
MTECSH 06024C6 0.5ISO	0.5	M3	6	2.35	3	6.5	58	Without	AH750
MTECSH 06024C9 0.5ISO	0.5	M3	6	2.35	3	9.5	58	Without	AH750
MTECSH 06028C7 0.6ISO	0.6	M3.5	6	2.75	3	7.5	58	Without	AH750
MTECSH 06031C12 0.7ISO	0.7	M4	6	3.1	3	12.5	58	Without	AH750
MTECSH 06038C12 0.8ISO	0.8	M5	6	3.8	3	12.5	58	Without	AH750
MTECSH 06047C14 1.0ISO	1	M6	6	4.65	3	14	58	Without	AH750
MTECSH 06047C20 1.0ISO	1	M6	6	4.65	3	20	58	Without	AH750
MTECSH 0606C18 1.25ISO	1.25	M8	6	5.95	3	18	58	Without	AH750
MTECSH 0606C24 1.25ISO	1.25	M8	6	5.95	3	24	58	Without	AH750
MTECSH 08078C23 1.5ISO	1.5	M10	8	7.8	3	23	64	Without	AH750
MTECSH 1009C26 1.75ISO	1.75	M12	10	9	3	26	73	Without	AH750
MTECSH 12118D35 2.0ISO	2	M16	12	11.8	4	35	84	Without	AH750

ISO metric

MTECD-ISO

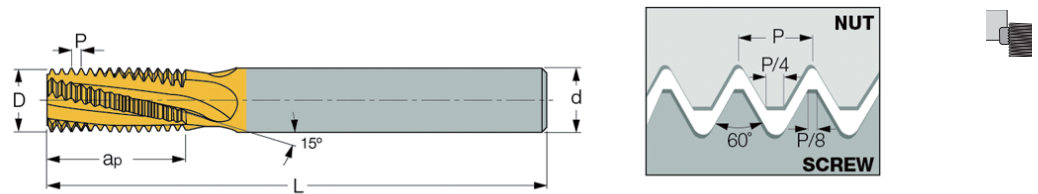
Small Diameter Short Left-Hand Cutting Solid Carbide Endmills for Internal ISO Profile Drilling, Threading and Chamfering



Designation	Pitch	Application range	d	D	Number of flutes	H	L	Ch	L1	Oil hole	Grade
MTECD 06032C11 0.7ISO	0.7	M4	6	3.15	3	11.6	58	0.2	0.7	Without	AH725
MTECD 0604C14 0.8ISO	0.8	M5	6	4	3	14.4	58	0.3	0.8	Without	AH725
MTECD 08047C14 1.0ISO	1	M6-M9	8	4.7	3	14	64	0.4	1	With	AH725
MTECD 08061D18 1.25ISO	1.25	M8-M12	8	6.1	4	18	64	0.5	1.3	With	AH725
MTECD 08078D23 1.5ISO	1.5	M10-M15	8	7.8	4	23	64	0.6	1.5	With	AH725
MTECD 1009D26 1.75ISO	1.75	M12	10	9	4	26	73	0.6	1.8	With	AH725
MTECD 12118D35 2.0ISO	2	M16-M23	12	11.8	4	35	84	0.6	2	With	AH725

MTEC E-ISO

Solid Carbide External Threading Endmills for ISO Thread Profile

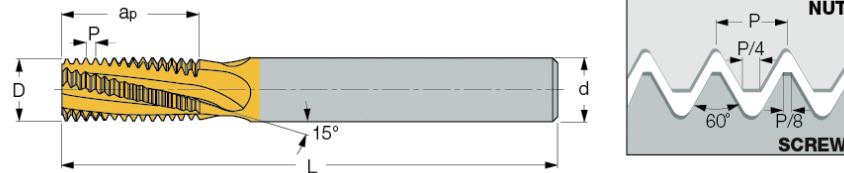


Designation	Pitch	d	D	Number of flutes	ap	L	Oil hole	Grade
MTEC E 1010D16 1.0ISO	1	10	10	4	16.5	73	Without	AH725
MTEC E 1010D16 1.25ISO	1.25	10	10	4	16.9	73	Without	AH725
MTEC E 1010D15 1.5ISO	1.5	10	10	4	15.8	73	Without	AH725
MTEC E 1212D20 1.5ISO	1.5	12	12	4	20.3	84	Without	AH725
MTEC E 1212D20 1.75ISO	1.75	12	12	4	20.1	84	Without	AH725
MTEC E 1212D21 2.0ISO	2	12	12	4	21	84	Without	AH725

Unified

MTEC-UN

Solid Carbide Threading Endmills
for Internal UN Thread Profile

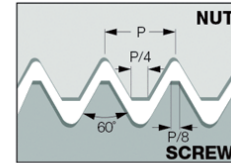
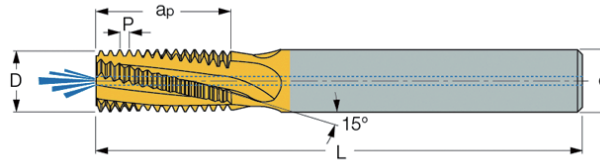


Designation	TPI	Application range			d	D	Number of flutes	ap	L	Oil hole	Grade
		UNC	UNF	UNEF							
MTEC 06032C6 32UN	32	8	10	12	6	3.2	3	6.8	58	Without	AH725
MTEC 0604C11 28UN	28	-	7/16,1/2	-	6	4	3	11.3	58	Without	AH725
MTEC 0606C14 28UN	28	-	-	7/16,1/2	6	6	3	14.5	58	Without	AH725
MTEC 0605C14 24UN	24	-	5/16	-	6	5	3	14.3	58	Without	AH725
MTEC 0807C21 24UN	24	-	3/8	9/16,5/8	8	7	3	20	64	Without	AH725
MTEC 06045C12 20UN	20	1/4	-	-	6	4.5	3	12.1	58	Without	AH725
MTEC 0807C21 20UN	20	-	7/16,1/2	-	8	7	3	20	64	Without	AH725
MTEC 1212E27 20UN	20	-	-	3/4,1	12	12	5	27.3	84	Without	AH725
MTEC 0605C14 18UN	18	5/16	-	-	6	5	3	14.8	58	Without	AH725
MTEC 1010D26 18UN	18	-	9/16,5/8	1-1/8,1-5/8	10	10	4	26.1	73	Without	AH725
MTEC 0606C16 16UN	16	3/8	-	-	6	6	3	16.7	58	Without	AH725
MTEC 1212D31 16UN	16	-	3/4	-	12	12	4	30	84	Without	AH725
MTEC 1615E37 14UN	14	-	7/8	-	16	15	5	37.2	105	Without	AH725
MTEC 0808C22 13UN	13	1/2	-	-	8	8	3	22.5	64	Without	AH725
MTEC 1010C26 12UN	12	9/16	-	-	10	10	3	26.5	73	Without	AH725
MTEC 1616E41 12UN	12	-	1,1-1/2	-	16	16	5	41.3	105	Without	AH725
MTEC 1010C28 11UN	11	5/8	-	-	10	10	3	28.9	73	Without	AH725
MTEC 1212C34 10UN	10	3/4	-	-	12	12	3	34.3	84	Without	AH725
MTEC 1615C38 9UN	9	7/8	-	-	16	15	3	38.1	105	Without	AH725
MTEC 1616C42 8UN	8	1	-	-	16	16	3	42.9	105	Without	AH725

Unified

MTECB-UN

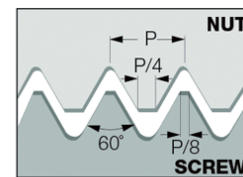
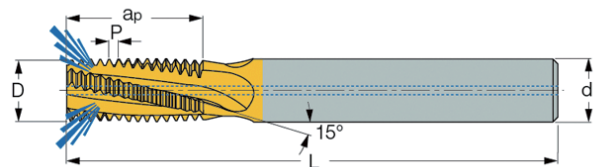
Solid Carbide Threading
Endmills with Coolant Holes for
Internal UN Thread Profile



Designation	TPI	Application range			d	D	Number of flutes	ap	L	Oil hole	Grade
		UNC	UNF	UNEF							
MTECB 06032C6 32UN	32	8	10	12	6	3.2	3	6.8	58	With	AH725
MTECB 0606C14 32UN	32	-	-	7/16-1/2	6	6	3	16	58	With	AH725
MTECB 0605C11 28UN	28	-	1/4	-	6	5	3	11.3	58	With	AH725
MTECB 08066C14 24UN	24	-	5/16	-	8	6.6	3	14.3	64	With	AH725
MTECB 0808D21 24UN	24	-	-	9/16-5/8	8	8	4	20.6	64	With	AH725
MTECB 0808C21 20UN	20	-	7/16	-	8	8	3	21	64	With	AH725
MTECB 1010D22 20UN	20	-	1/2	-	10	10	4	22.3	73	With	AH725
MTECB 06056C14 18UN	18	5/16	-	-	6	5.6	3	14.8	58	With	AH725
MTECB 12113D26 18UN	18	-	9/16-5/8	1-1/8-1-5/8	12	11.3	4	26.1	84	With	AH725
MTECB 08067C16 16UN	16	3/8	-	-	8	6.7	3	16.7	64	With	AH725
MTECB 1212D31 16UN	16	-	3/4	-	12	12	4	31	84	With	AH725
MTECB 1616E37 14UN	14	-	7/8	-	16	16	5	37.2	105	With	AH725
MTECB 10092C22 13UN	13	1/2	-	-	10	9.2	3	22.5	73	With	AH725
MTECB 12114C28 11UN	11	5/8	-	-	12	11.4	3	28.9	84	With	AH725
MTECB 16144D34 10UN	10	3/4	-	-	16	14.4	4	34.3	105	With	AH725
MTECB 20195D42 8UN	8	1	-	-	20	19.5	4	42.9	105	With	AH725

MTECZ-UN

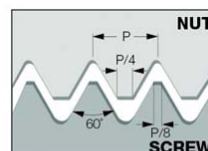
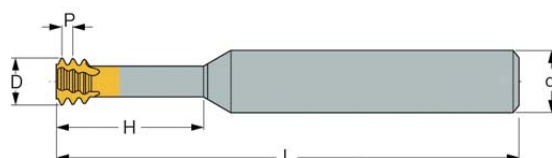
Solid Carbide Threading Endmills
with Coolant Holes Located in the
Flutes for Internal UN Thread Profile



Designation	TPI	Application range			d	D	Number of flutes	ap	L	Oil hole	Grade
		UNC	UNF	UNEF							
MTECZ 1010D22 20UN	20	-	1/2	-	10	10	4	22.3	73	With	AH725
MTECZ 12113D26 18UN	18	-	9/16-5/8	1-1/8-1-5/8	12	11.3	4	26.1	84	With	AH725
MTECZ 08067C16 16UN	16	3/8	-	-	8	6.7	3	16.7	64	With	AH725
MTECZ 16144D34 10UN	10	3/4	-	-	16	14.4	4	34.3	101	With	AH725

MTECS-UN

Small Diameter Solid Carbide UN
Profile Threading Endmills for Steel

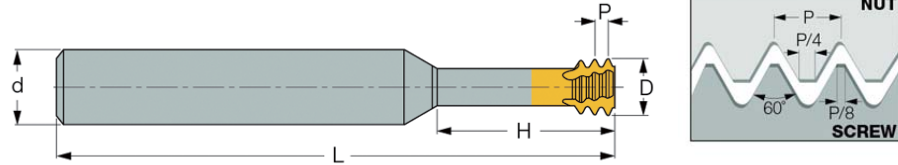


Designation	TPI	Application range		d	D	Number of flutes	H	L	Oil hole	Grade
		UNC	UNF							
MTECS 03012C8 80UN	80	-	0	3	1.15	3	8	39	Without	AH725
MTECS 03015C6 72UN	72	-	1	3	1.45	3	6	39	Without	AH725
MTECS 06016C6 56UN	56	2	3	6	1.65	3	6.6	58	Without	AH725
MTECS 06019C5 48UN	48	3	4	6	1.9	3	5.2	58	Without	AH725
MTECS 03021C12 40UN	40	4	-	3	2.1	3	12	39	Without	AH725
MTECS 06021C8 40UN	40	4	-	6	2.1	3	8	58	Without	AH725
MTECS 06024C9 40UN	40	5	6	6	2.45	3	9.6	58	Without	AH725
MTECS 06021C6 40UN	40	4	-	6	2.1	3	6.3	58	Without	AH725
MTECS 06033C9 36UN	36	-	8	6	3.3	3	9	58	Without	AH725
MTECS 06025C7 32UN	32	6	-	6	2.55	3	7.1	58	Without	AH725
MTECS 06025C10 32UN	32	6	-	6	2.55	3	10.5	58	Without	AH725
MTECS 06032C9 32UN	32	8	10	6	3.2	3	9.5	58	Without	AH725
MTECS 06032C12 32UN	32	8	10	6	3.2	3	12.5	58	Without	AH725
MTECS 06037C10 32UN	32	-	10	6	3.7	3	10.5	58	Without	AH725
MTECS 06037C15 32UN	32	-	10	6	3.7	3	15	58	Without	AH725
MTECS 0605C14 28UN	28	-	1/4	6	5	3	14.5	58	Without	AH725
MTECS 0605C19 28UN	28	-	1/4	6	5	3	19	58	Without	AH725
MTECS 08066C17 24UN	24	-	5/16	8	6.6	3	17	64	Without	AH725
MTECS 08066C24 24UN	24	-	5/16	8	6.6	3	24	64	Without	AH725
MTECS 06047C14 20UN	20	1/4	-	6	4.75	3	14	58	Without	AH725
MTECS 06047C19 20UN	20	1/4	-	6	4.75	3	19	58	Without	AH725
MTECS 06047C19 20UN-L	20	1/4	-	6	4.75	3	19	105	Without	AH725
MTECS 0808C25 20UN	20	-	7/16	8	8	3	25	64	Without	AH725
MTECS 0606C17 18UN	18	5/16	-	6	6	3	17	58	Without	AH725
MTECS 0606C23 18UN	18	5/16	-	6	6	3	23	58	Without	AH725
MTECS 1212D35 18UN	18	-	5/8	12	12	4	35	84	Without	AH725
MTECS 08067C22 16UN	16	3/8	-	8	6.7	3	22	64	Without	AH725
MTECS 08067C30 16UN	16	3/8	-	8	6.7	3	30.2	64	Without	AH725
MTECS 08077C25 14UN	14	7/16	-	8	7.7	3	25	64	Without	AH725
MTECS 10092C27 13UN	13	1/2	-	10	9.2	3	27.5	73	Without	AH725
MTECS 12114C34 11UN	11	5/8	-	12	11.4	3	34.5	84	Without	AH725
MTECS 12114C50 11UN	11	5/8	-	12	11.4	3	50	105	Without	AH725

Unified

MTECSH-UN

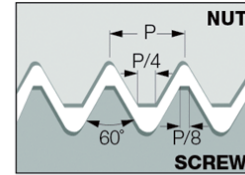
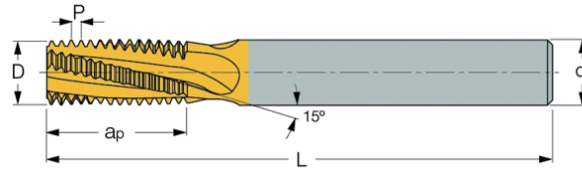
Small Diameter Short Left-Hand Cutting
Solid Carbide UN Profile Threading
Endmills for Hardened Steel



Designation	TPI	Application range		d	D	Number of flutes	H	L	Oil hole	Grade
		UNC	UNF							
MTECSH 06012C4 80UN	80	-	0	6	1.15	3	4	58	Without	AH725
MTECSH 06016C6 56UN	56	2	3	6	1.65	3	6.6	58	Without	AH725
MTECSH 06019C5 48UN	48	3	4	6	1.9	3	5.2	58	Without	AH725
MTECSH 06021C6 40UN	40	4	-	6	2.1	3	6.3	58	Without	AH725
MTECSH 06024C7 40UN	40	5	6	6	2.45	3	7	58	Without	AH725
MTECSH 06021C8 40UN	40	4	-	6	2.1	3	8	58	Without	AH725
MTECSH 06024C9 40UN	40	5	6	6	2.45	3	9.6	58	Without	AH725
MTECSH 06025C10 32UN	32	6	-	6	2.55	3	10.5	58	Without	AH725
MTECSH 06032C9 32UN	32	8	-	6	3.2	3	9.5	58	Without	AH725
MTECSH 06037C10 32UN	32	-	10	6	3.7	3	10.5	58	Without	AH725
MTECSH 06037C15 32UN	32	-	10	6	3.7	3	15	58	Without	AH725
MTECSH 06042C11 28UN	28	-	12	6	4.2	3	11	58	Without	AH725
MTECSH 0605C14 28UN	28	-	1/4	6	5	3	14.5	58	Without	AH725
MTECSH 06035C10 24UN	24	10,12	-	6	3.5	3	10.6	58	Without	AH725
MTECSH 08066C17 24UN	24	-	5/16	8	6.6	3	17	64	Without	AH725
MTECSH 08066C24 24UN	24	-	5/16	8	6.6	3	24	64	Without	AH725
MTECSH 06047C19 20UN	20	1/4	-	6	4.75	3	19	58	Without	AH725
MTECSH 0808C25 20UN	20	-	7/16	8	8	3	25	64	Without	AH725
MTECSH 0606C17 18UN	18	5/16	-	6	6	3	17	58	Without	AH725
MTECSH 0606C23 18UN	18	5/16	-	6	6	3	23	58	Without	AH725
MTECSH 08067C22 16UN	16	3/8	-	8	6.7	3	22	64	Without	AH725
MTECSH 08077C25 14UN	14	7/16	-	8	7.7	3	25	64	Without	AH725
MTECSH 10092C27 13UN	13	1/2	-	10	9.2	3	27.5	73	Without	AH725
MTECSH 12114C34 11UN	11	5/8	-	12	11.4	3	34.5	84	Without	AH725

MTEC E-UN

Solid Carbide Threading Endmills with UN Form for External Threading

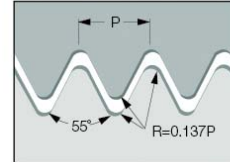
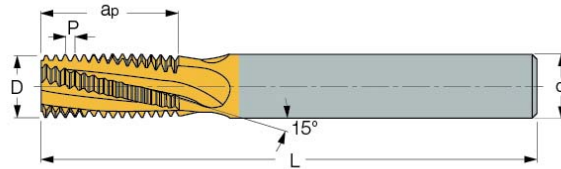


Designation	TPI	d	D	Number of flutes	ap	L	Oil hole	Grade
MTEC E 1010D16 24UN	24	10	10	4	16.4	73	Without	AH725
MTEC E 1212E21 20UN	20	12	12	5	21	84	Without	AH725

Whitworth

MTEC-W

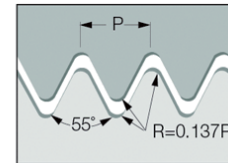
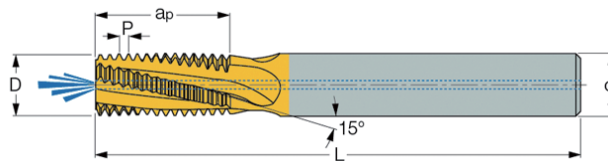
Solid Carbide Threading Endmills for Internal or External BSP Thread Profile



Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTEC 0606C9 28W	28	G1/8	6	6	3	9.5	58	Without	AH725
MTEC 0808C14 19W	19	G1/4,G3/8	8	8	3	14	64	Without	AH725
MTEC 1212D19 14W	14	G1/2,G7/8	12	12	4	19.3	84	Without	AH725
MTEC 1212D26 14W	14	G1/2,G7/8	12	12	4	26.3	84	Without	AH725
MTEC 1212C24 11W	11	G1,-G1-1/2	12	12	3	24.2	84	Without	AH725
MTEC 1616D38 11W	11	G1,G3	16	16	4	38.1	105	Without	AH725

MTECB-W

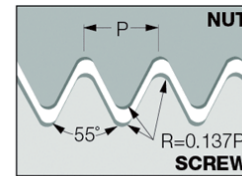
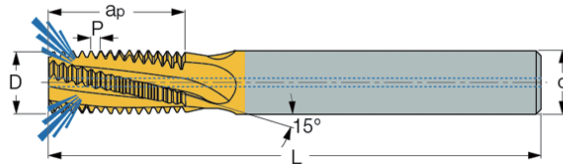
Solid Carbide Internal or External Threading Endmills with Coolant Holes for BSP Thread Profile



Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTECB 08078C14 28W	28	G1/8	8	7.8	3	14.1	64	With	AH725
MTECB 1010D16 19W	19	G1/4-3/8	10	10	4	16.7	73	With	AH725
MTECB 1616E26 14W	14	G1/2-7/8	16	16	5	26.3	105	With	AH725
MTECB 1616D38 11W	11	G≥1	16	16	4	38.1	105	With	AH725
MTECB 2020E47 11W	11	G≥1	20	20	5	47.3	105	With	AH725

MTECZ-W

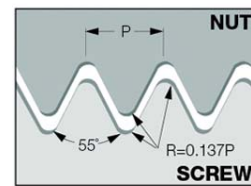
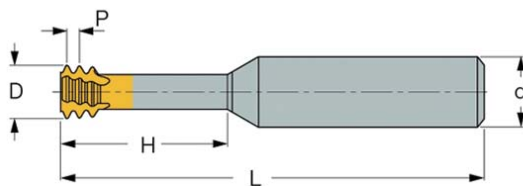
Solid Carbide Threading Endmills with Coolant Holes Located in the Flutes for Internal or External BSF/BSP Thread



Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTECZ 08078C14 28W	28	G1/8	8	7.8	3	14.1	64	With	AH725
MTECZ 1010D16 19W	19	G1/4-3/8	10	10	4	16.7	73	With	AH725
MTECZ 1616E26 14W	14	G1/2-7/8	16	16	5	26.3	101	With	AH725

MTECS-W

Short Solid Carbide Threading Endmills for Internal or External BSP and BSF Thread Profiles

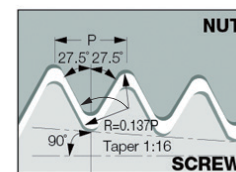
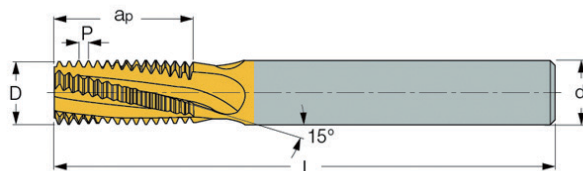


Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTECS 08078C19 28W	28	G 1/8	8	7.8	3	19.5	64	Without	AH725
MTECS 1010D30 19W	19	G 1/4-3/8	10	10	4	30	73	Without	AH725
MTECS 1212D37 14W	14	G 1/2-7/8	12	12	4	37	84	Without	AH725

BSPT

MTEC-BSPT

Solid Carbide Threading Endmills for External or Internal BSPT Thread Profile

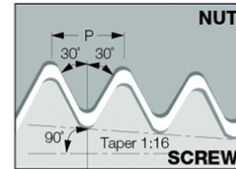
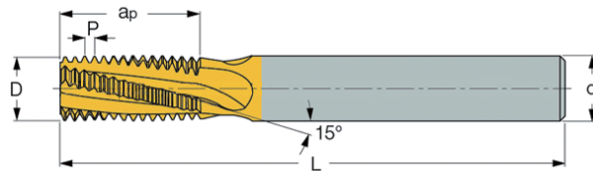


Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTEC 0606C9 28BSPT	28	RC1/8	6	6	3	9.5	58	Without	AH725
MTEC 0808C14 19BSPT	19	RC1/4,RC3/8	8	8	3	14	64	Without	AH725
MTEC 1212D19 14BSPT	14	RC1/2,RC7/8	12	12	4	19.1	84	Without	AH725
MTEC 1616D28 11BSPT	11	RC1,RC2	16	16	4	28.9	105	Without	AH725

NPT

MTEC-NPT

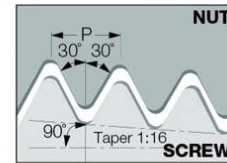
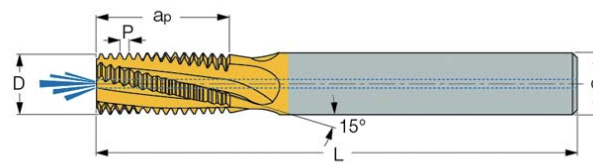
Solid Carbide Threading Endmill without Coolant Holes for Internal or External NPT Threads



Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTEC 0606C9 27NPT	27	1/16, 1/8	6	6	3	9.9	58	Without	AH725
MTEC 0808C14 18NPT	18	1/4, 3/8	8	8	3	14.8	64	Without	AH725
MTEC 1212D20 14NPT	14	1/2, 3/4	12	12	4	20.9	84	Without	AH725
MTEC 1616D27 11.5NPT	11.5	1, 2	16	16	4	27.6	105	Without	AH725
MTEC 2020D39 8NPT	8	≥2-1/2	20	20	4	39.7	105	Without	AH725

MTECB-NPT

Solid Carbide Threading Endmill with a Coolant Hole Internal or External NPT Threads

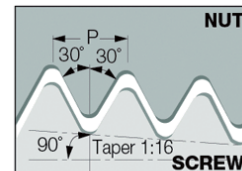
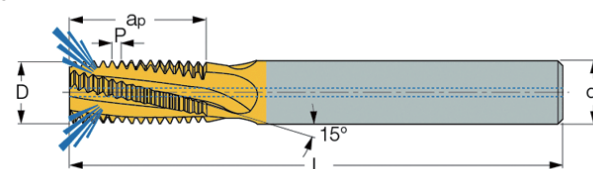


Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTECB 08076C10 27NPT	27	1/8	8	7.6	3	10.8	64	With	AH725
MTECB 1010D16 18NPT	18	1/4, 3/8	10	10	4	16.2	73	With	AH725
MTECB 16155D22 14NPT	14	1/2, 3/4	16	15.5	4	22.7	105	With	AH725

NPTF

MTECZ-NPTF

Solid Carbide Threading Endmill with Coolant Holes located in the Flutes Internal or External NPT Threads

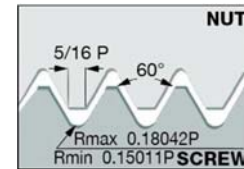
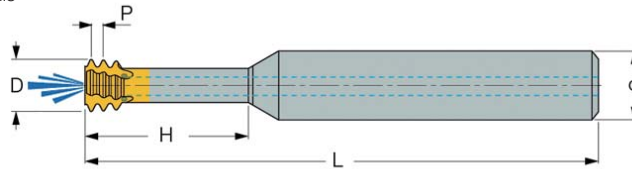


Designation	TPI	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTECZ 08076C10 27NPTF	27	1/8	8	7.6	3	10.8	64	With	AH725
MTECZ 1010D16 18NPTF	18	1/4-3/8	10	10	4	16.2	73	With	AH725

MJ

MTECS-MJ

Small Diameter Short Solid Carbide
MJ-Type Profile Threading Endmills

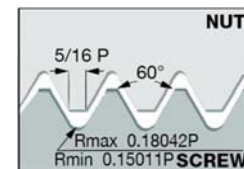
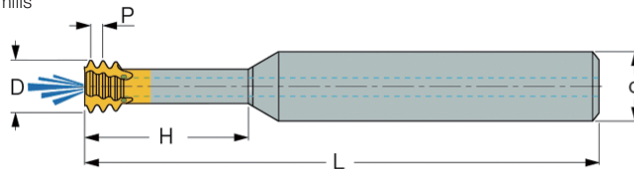


Designation	Pitch	Application range	d	D	Number of flutes	ap	L	Oil hole	Grade
MTECS 06039C12 0.8MJ	0.8	5	6	3.9	3	12.5	58	With	AH725
MTECS 08061C20 1.25MJ	1.25	8	8	6.1	3	20	64	With	AH725
MTECS 10092C30 1.75MJ	1.75	12	10	9.2	3	30	73	With	AH725

UNJ

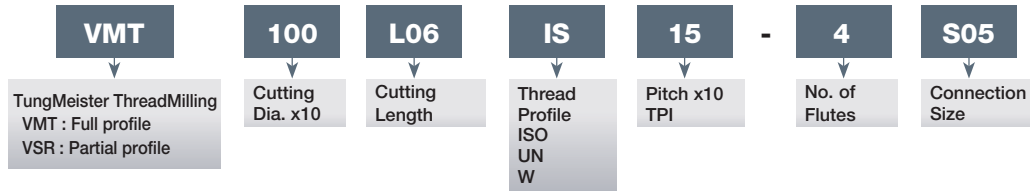
MTECS-UNJ

Small Diameter Short Solid Carbide
UNJ-Type Profile Threading Endmills



Designation	TPI	Application range		d	D	Number of flutes	H	L	Oil hole	Grade
		UNJC	UNJF							
MTECS 08051C16 28UNJ	28	-	1/4	8	5.1	3	16	64	With	AH725
MTECS 08067C20 24UNJ	24	-	5/16, 3/8	8	6.7	3	20	64	With	AH725
MTECS 06049C16 20UNJ	20	1/4	-	6	4.9	3	16	58	Without	AH725
MTECS 0808C28 20UNJ	20	-	7/16	8	8	3	28	64	With	AH725
MTECS 08061C20 18UNJ	18	5/16	-	8	6.15	3	20	64	With	AH725

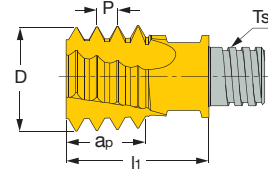
Designation System for TungMeister



ISO metric

VMT***IS

Carbide Milling Heads with a Threaded Connection for Internal ISO Metric Thread

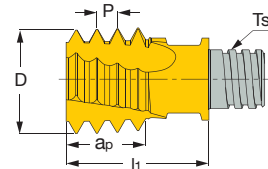


Designation	Pitch	Application range		D	Number of flutes	ap	l1	Ts	Grade	Wrench
		Coarse	Fine							
VMT100L06IS07-4S05	0.75	-	≥12	10	4	6	12.8	S05	AH725	KEYV-S05
VMT100L06IS10-4S05	1	-	≥12	10	4	6	12.8	S05	AH725	KEYV-S05
VMT100L06IS15-4S05	1.5	-	≥14	10	4	6	12.8	S05	AH725	KEYV-S05
VMT120L09IS15-4S06	1.5	-	≥16	12	4	9	14.3	S06	AH725	KEYV-T25
VMT120L10IS20-4S06	2	M16	≥17	12	4	10	14.3	S06	AH725	KEYV-T25
VMT160L12IS15-6S08	1.5	-	≥20	16	6	12	19	S08	AH725	KEYV-T30L
VMT160L12IS20-5S08	2	-	≥19	16	5	12	19	S08	AH725	KEYV-T30L
VMT150L13IS25-5S08	2.5	M20	≥22	15.4	5	12.5	19	S08	AH725	KEYV-T30L
VMT160L12IS30-3S08	3	M24	≥25	16	3	12	19	S08	AH725	KEYV-T30L

Unified

VMT***UN

Carbide Milling Heads with a Threaded Connection for Internal UN Thread Profile

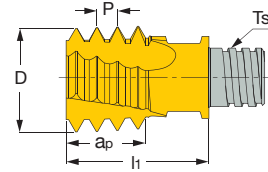


Designation	TPI	Application range			D	Number of flutes	ap	l1	Ts	Grade	Wrench
		UNC	UNF	UNEF							
VMT100L06UN24-4S05	24	-	-	9/16-5/8	10	4	5.3	12.8	S05	AH725	KEYV-S05
VMT100L06UN20-4S05	20	-	1/2	-	10	4	5.1	12.8	S05	AH725	KEYV-S05
VMT100L06UN18-4S05	18	-	9/16-5/8	1 1/8-1 5/8	10	4	5.6	12.8	S05	AH725	KEYV-S05
VMT120L10UN16-4S06	16	-	3/4	-	12	4	9	14.3	S06	AH725	KEYV-T25
VMT120L10UN14-4S06	14	-	7/8	-	12	4	9	14.3	S06	AH725	KEYV-T25
VMT160L13UN12-5S08	12	-	1-1 1/2	-	16	5	12.7	19	S08	AH725	KEYV-T30L
VMT150L13UN10-4S08	10	3/4	-	-	15.4	4	12.7	19	S08	AH725	KEYV-T30L
VMT160L11UN09-3S08	9	7/8	-	-	16	3	11.3	19	S08	AH725	KEYV-T30L
VMT160L12UN08-3S08	8	1	-	-	16	3	12.7	19	S08	AH725	KEYV-T30L

Whitworth

VMT***W

Carbide Milling Heads with a Threaded Connection for Internal and External 55° BSW Thread Profile

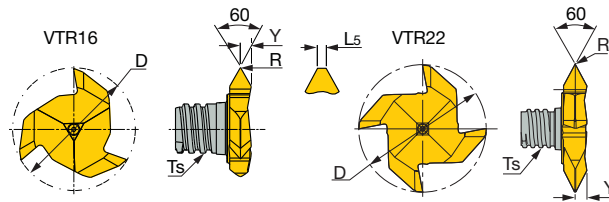


Designation	TPI	Application range	D	Number of flutes	ap	l1	Ts	Grade	Wrench
VMT100L06W19-4S05	19	G1/4-3/8	10	4	5.3	12.75	S05	AH725	KEYV-S05
VMT160L12W14-4S08	14	G1/2-7/8	16	4	12.7	19	S08	AH725	KEYV-T30L
VMT160L11W11-4S08	11	G≥1	16	4	11.6	19	S08	AH725	KEYV-T30L

60° partial profile

VTR***IS

Interchangeable Solid Carbide Milling Head with Threaded Connection for Internal or External 60° Partial Profile Thread Milling

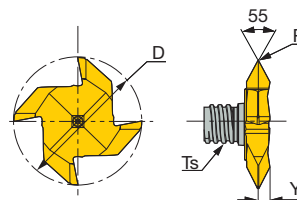


Designation	Pitch		Smallest Possible thread	R	L5	Y	D	Number of flutes	Ts	Grade	Wrench
	P min	P max									
VTR160L12IS05-3S06	0.5	2	M20	-	0.05	1.2	19.05	3	S06	GH130	KEYV-177
VTR160L12IS15-3S06	1.5	2	M22	0.05	-	1.2	19.05	3	S06	GH130	KEYV-177
VTR220L28IS30-4S08	3	4.5	M36	0.2	-	2.8	31	4	S08	GH130	KEYV-217

55° partial profile

VTR***W

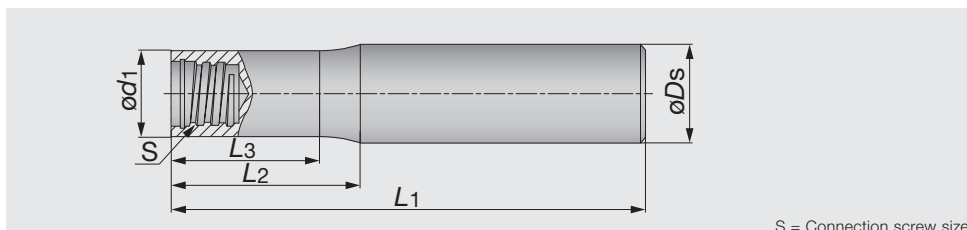
Interchangeable Solid Carbide Milling Head with Threaded Connection for Internal or External 55° Partial Profile Thread Milling



Designation	Pitch		Smallest Possible thread	R	Y	D	Number of flutes	Ts	Grade	Wrench
	TPI max	TPI min								
VTR220L24W14-4S08	14	11	G3/4	0.2	2.4	24.2	4	S08	GH130	KEYV-217

VSSD...

TungMeister, straight neck and cylindrical shank

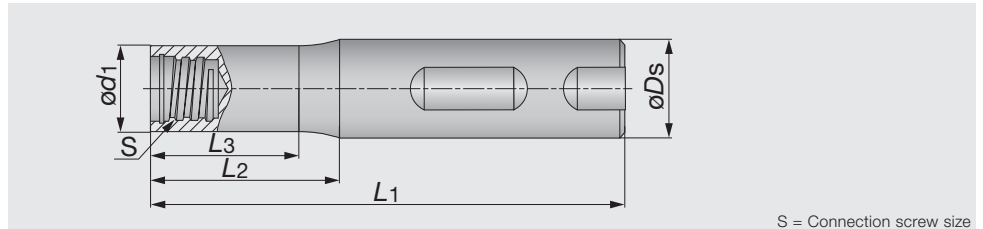


S = Connection screw size

Designation	$\varnothing D_s$	$\varnothing d_1$	L_1	L_2	L_3	S	Type	Material
VSSD08L060S05-S	8	7.6	60	15	12.80	S05	CYLINDRICAL	STEEL
VSSD08L070S05-C	8	7.6	70	20	19	S05	CYLINDRICAL	CARBIDE
VSSD08L090S05-C	8	7.6	90	40	39	S05	CYLINDRICAL	CARBIDE
VSSD08L110S05-C	8	7.6	110	60	59	S05	CYLINDRICAL	CARBIDE
VSSD10L070S06-C	10	9.6	70	20	18.5	S06	CYLINDRICAL	CARBIDE
VSSD10L075S06-S	10	9.6	75	20	17.7	S06	CYLINDRICAL	STEEL
VSSD10L090S06-C	10	9.6	90	40	38.5	S06	CYLINDRICAL	CARBIDE
VSSD10L110S06-C	10	9.6	110	60	58.5	S06	CYLINDRICAL	CARBIDE
VSSD10L150S06-C	10	9.6	150	100	98.5	S06	CYLINDRICAL	CARBIDE
VSSD12L070S08-C	12	11.5	70	20	17	S08	CYLINDRICAL	CARBIDE
VSSD12L090S08-C	12	11.5	90	40	37	S08	CYLINDRICAL	CARBIDE
VSSD12L090S08-S	12	11.5	90	16	13.6	S08	CYLINDRICAL	STEEL
VSSD12L110S08-C	12	11.5	110	60	57	S08	CYLINDRICAL	CARBIDE
VSSD12L130S08-C	12	11.5	130	80	77	S08	CYLINDRICAL	CARBIDE
VSSD16L090S10-C	16	15.2	90	40	38	S10	CYLINDRICAL	CARBIDE
VSSD16L100S10-S	16	15.2	100	20	18	S10	CYLINDRICAL	STEEL
VSSD16L110S10-C	16	15.2	110	60	58	S10	CYLINDRICAL	CARBIDE
VSSD16L130S10-C	16	15.2	130	80	78	S10	CYLINDRICAL	CARBIDE
VSSD16L150S10-C	16	15.2	150	100	98	S10	CYLINDRICAL	CARBIDE
VSSD20L090S12-C	20	18.3	90	40	37	S12	CYLINDRICAL	CARBIDE
VSSD20L120S12-S	20	18.3	120	25	20.5	S12	CYLINDRICAL	STEEL
VSSD20L130S12-C	20	18.3	130	80	77	S12	CYLINDRICAL	CARBIDE
VSSD20L200S12-C	20	18.3	200	120	117	S12	CYLINDRICAL	CARBIDE
VSSD25L120S15-C	25	23.9	120	60	58	S15	CYLINDRICAL	CARBIDE
VSSD25L135S15-S	25	23.9	135	35	33	S15	CYLINDRICAL	STEEL
VSSD25L170S15-C	25	23.9	170	100	98	S15	CYLINDRICAL	CARBIDE
VSSD25L250S15-C	25	23.9	250	150	148	S15	CYLINDRICAL	CARBIDE

VSSD**W...

TungMeister, straight neck and weldon shank

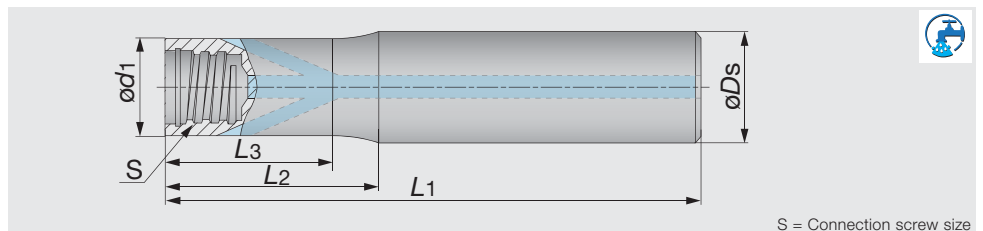


S = Connection screw size

Designation	ϕD_s	ϕd_1	L_1	L_2	L_3	S	Shank	Material
VSSD12L055W05-S	12	7.6	55	3.8	-	S05	WELDON	STEEL
VSSD16L065W06-S	16	9.6	65	6	-	S06	WELDON	STEEL
VSSD16L065W08-S	16	11.5	65	4	-	S08	WELDON	STEEL
VSSD20L070W10-S	20	15.2	70	4	-	S10	WELDON	STEEL
VSSD25L075W12-S	25	18.3	75	6	-	S12	WELDON	STEEL

VSSD**-W-A

TungMeister, straight shank and neck with coolant hole

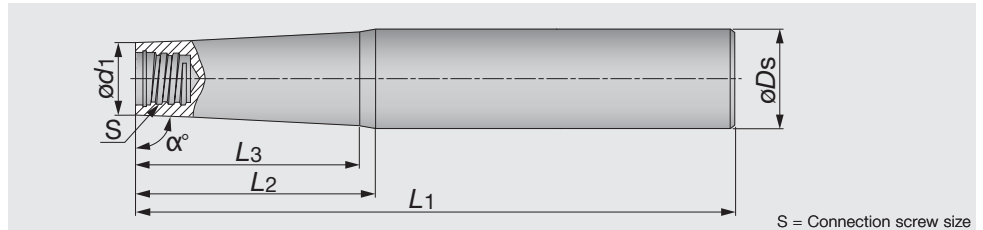


S = Connection screw size

Designation	ϕD_s	ϕd_1	L_1	L_2	L_3	S	Material
VSSD10L070S06-W-A	10	9.6	70	20	19	S06	TUNGSTEN
VSSD10L090S06-W-A	10	9.6	90	40	39	S06	TUNGSTEN
VSSD10L110S06-W-A	10	9.6	110	60	59	S06	TUNGSTEN
VSSD12L070S08-W-A	12	11.5	70	20	19	S08	TUNGSTEN
VSSD12L090S08-W-A	12	11.5	90	40	39	S08	TUNGSTEN
VSSD12L110S08-W-A	12	11.5	110	60	59	S08	TUNGSTEN
VSSD12L130S08-W-A	12	11.5	130	80	79	S08	TUNGSTEN
VSSD16L070S10-W-A	16	15.2	70	20	18.5	S10	TUNGSTEN
VSSD16L090S10-W-A	16	15.2	90	40	36.5	S10	TUNGSTEN
VSSD16L110S10-W-A	16	15.2	110	60	58.5	S10	TUNGSTEN
VSSD16L130S10-W-A	16	15.2	130	80	78.5	S10	TUNGSTEN
VSSD20L090S12-W-A	20	18.3	90	40	37	S12	TUNGSTEN
VSSD20L130S12-W-A	20	18.3	130	80	77	S12	TUNGSTEN

VTSD...

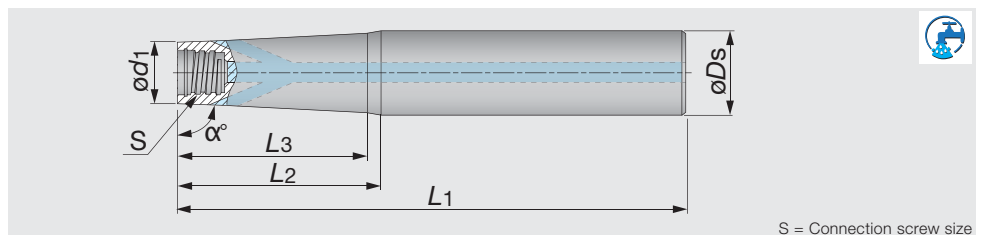
TungMeister, straight shank and taper neck



Designation	α°	ϕD_s	ϕd_1	L1	L2	L3	S	Material
VTSD12L080S05-S	85	12	7.6	80	25	-	S05	STEEL
VTSD12L100S05-S	89	12	7.6	100	35	31	S05	STEEL
VTSD12L110S05-C	89	12	7.6	110	60	58	S05	CARBIDE
VTSD12L130S05-C	89	12	7.6	130	80	79	S05	CARBIDE
VTSD16L125S06-S	85	16	9.6	125	34	31.6	S06	STEEL
VTSD16L130S08-C	89	16	11.5	130	80	78.8	S08	CARBIDE
VTSD16L140S08-S	85	16	11.5	140	22	19.3	S08	STEEL
VTSD16L150S05-C	89	16	7.6	150	100	96	S05	CARBIDE
VTSD16L150S06-C	89	16	9.6	150	100	98	S06	CARBIDE
VTSD16L150S08-C	89	16	11.5	150	100	-	S08	CARBIDE
VTSD16L160S06-S	89	16	9.6	160	55	45.9	S06	STEEL
VTSD16L170S06-C	89	16	9.6	170	120	119	S06	CARBIDE
VTSD20L140S10-S	85	20	15.2	140	27.5	-	S10	STEEL
VTSD20L170S08-C	89	20	11.5	170	120	117	S08	CARBIDE
VTSD20L170S08-S	89	20	11.5	170	80	68.6	S08	STEEL
VTSD20L170S10-C	89	20	15.2	170	120	-	S10	CARBIDE
VTSD20L190S10-C	89	20	15.2	190	140	-	S10	CARBIDE
VTSD20L190S10-S	89	20	15.2	190	80	73	S10	STEEL
VTSD20L210S10-C	89	20	15.2	210	160	-	S10	CARBIDE
VTSD25L160S12-S	85	25	18.3	160	40	-	S12	STEEL
VTSD25L170S10-S	85	25	15.2	170	56	-	S10	STEEL
VTSD25L180S12-C	89	25	18.3	180	120	-	S12	CARBIDE
VTSD25L210S12-S	89	25	18.3	210	100	91	S12	STEEL
VTSD25L250S12-C	89	25	18.3	250	140	-	S12	CARBIDE
VTSD32L155S15-S	85	32	23.9	155	45	40	S15	STEEL
VTSD32L190S12-S	85	32	18.3	190	80	-	S12	STEEL
VTSD32L220S15-S	85	32	23.9	220	100	-	S15	STEEL
VTSD32L250S15-C	89	32	23.9	250	150	-	S15	CARBIDE
VTSD32L300S15-C	89	32	23.9	300	200	-	S15	CARBIDE

VTSD**-W-A

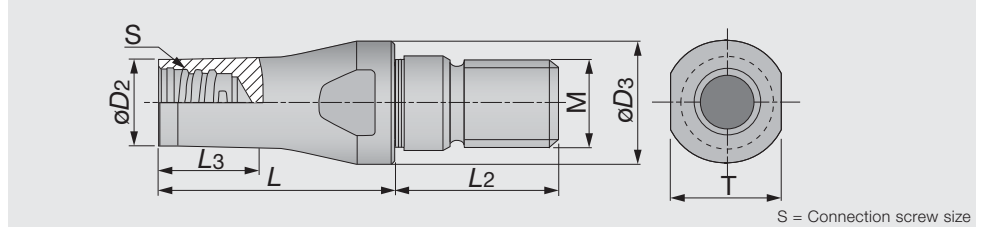
TungMeister, straight shank and taper neck with coolant hole



Designation	α°	ϕD_s	ϕd_1	L1	L2	L3	S	Material
VTSD12L110S06-W-A	89	12	9.6	110	60	59	S06	TUNGSTEN
VTSD16L170S06-W-A	89	16	9.6	170	120	116	S06	TUNGSTEN

VAD**-M...

TungFlex conversion adaptor with TungMeister



S = Connection screw size

Designation	øD2	øD3	L	L2	L3	S	M	T
VAD130L016S08-S-M8	11.7	13	16	17.5	6	S08	M8	11
VAD130L025S08-S-M8	11.7	13	25	17.5	20	S08	M8	11
VAD180L020S08-S-M10	11.7	18	20	20	12	S08	M10	13
VAD180L025S08-S-M10	11.7	18	25	20	15	S08	M10	11
VAD210L020S08-S-M12	11.7	21	20	20	10	S08	M12	12.75
VAD210L025S08-S-M12	11.7	21	25	20	13	S08	M12	12.75

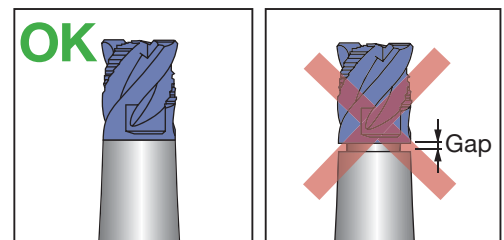
Wrench

Appearance	Cat. No.	Stock	Connection screw size	Torque (N-m)
	KEYV-S05	●	S05	7
	KEYV-S06	●	S06	10
	KEYV-S08	●	S08	15
	KEYV-S10	●	S10	28
	KEYV-S12	●	S12	28
	KEYV-W20	●	S15	40
	KEYV-177	●	S06	10
	KEYV-217	●	S08	15
	KEYV-T40L	●	S08 / S10	15
	KEYV-T20	●	S05	7
			S06	10
	KEYV-T25	●	S06	10
	KEYV-T30L	●	S08	15
KEYV-T50L	●	S08	28	
		S10		

Note: Optional parts

CAUTIONARY POINTS IN USE

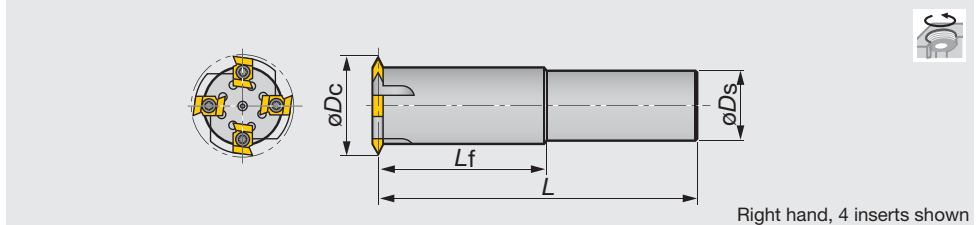
- The cutting heads specified by Tungaloy must be used. Avoid using alternate heads that are not Tungaloy products as this will damage the shank and can cause severe accident or injury.
- Before setting the head, clean the connection screw with an air blast or a wiping cloth to remove chips and other foreign matter that may remain.
- Do not apply the lubricant to the connection screw.
- Please use the correct "Wrench" with the correct cutting head. Tighten the head slowly until the face of the head contacts the shank. (Please refer to the picture shown on the right.) Re-tightening or over-tightening is not required. Excessive tightening may cause the cutting head to break.
- Do not apply excessive force or a hammer when tightening or exchanging the cutting heads.



Indexable threading mills

Single tooth threading mills

Indexable threading mills



Designation	ϕD_c	z	ϕD_s	L_f	L	Range of internal thread	Insert
D23-D25-45R	23	1	25	45	115	M28 - M30	T1-R...
D25-D25-45R	25	1	25	45	115	M32 - M42	T1-R...
D38-D32-85R	38	2	32	85	165	M45 - M56	T1-R...
D50-D42-100R	50	4	42	100	190	M58 - M68	T1-R...
D55-D42-100R	55	4	42	100	190	M64 - M85	T2-R...
D60-D42-100R	60	4	42	100	190	M70 - M85	T2-R...
D80-D42-100R	80	6	42	100	190	M90 -	T2-R...

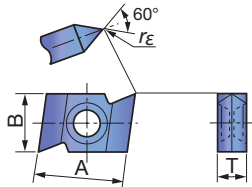
SPARE PARTS



Designation	Clamping screw	Wrench
D23-D25... - D50-D42...	CSTB-4	T-15F
D55-D42... - D80-D42...	CSTB-5	T-20F

INSERTS

T*-R...



P	Steel	★				
M	Stainless	★				
K	Cast iron					
N	Non-ferrous					
S	Superalloys					
H	Hard materials					

★ : First choice
☆ : Second choice

Designation	r_ϵ	Coated						A	B	T
		GH330								
T1-R14	0.14	●						14.4	9.525	4.76
T1-R28	0.28	●						14.4	9.525	4.76
T2-R14	0.14	●						17.8	12.7	6.35
T2-R28	0.28	●						17.8	12.7	6.35

● : Line-up

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed per tooth fz (mm/t)
P	Mild steels / Unhardened steels < 200HB	GH330	150 ~ 200	0.3 ~ 0.4
	Carbon steels / Alloy steels < 300HB	GH330	150 ~ 200	0.17 ~ 0.26
	Die steels < 50HRC	GH330	30 ~ 50	0.14 ~ 0.2
M	Stainless steels < 300HB.	GH330	150 - 200	0.05 - 0.12

- Climb milling is recommended.
- When threading a blind hole, use a right hand cutter in right-hand rotation. Cut up from the bottom to prevent chip recutting.
- When machining internal threads from the mouth, use the left-hand cutter in left-hand rotation.

THREADING MILLS AND APPLICABLE THREADS

Cutter dia.	Applicable Thread						Minor diameter of max. pitch thread	
	Thread type	Coarse screw thread	Fine screw thread				Coarse screw thread	Fine screw thread
D23 X 1 tooth T1-type of inserts	M28				2	1.5		25.835
	M30	3.5			3	2	1.5	26.211
D25 X 1 tooth T1-type of inserts	M32				2	1.5		29.835
	M33	3.5			3	2	1.5	29.211
	M35					1.5		33.376
	M36	4			3	2	1.5	31.670
	M38					1.5		36.376
	M39	4			3	2	1.5	34.670
	M40				3	2	1.5	36.752
D38 X 2 teeth T1-type of inserts	M42	4.5	4	3	2	1.5	37.129	
	M45			3	2	1.5		40.152
	M48		4	3	2	1.5		43.670
	M50			3	2	1.5		46.752
	M52		4	3	2	1.5		47.670
	M55		4	3	2	1.5		50.670
D50 X 4 teeth T1-type of inserts	M56		4	3	2	1.5		51.670
	M58		4	3	2	1.5		53.670
	M60		4	3	2	1.5		55.670
	M62		4	3	2	1.5		57.670
	M64		4	3	2	1.5		59.670
D55 X 4 teeth T2-type of inserts	M65		4	3	2	1.5		60.670
	M68	6	4	3	2	1.5	61.505	
	M70			4	3	2	1.5	63.505
D60 X 4 teeth T2-type of inserts	M72		6	4	3	2	1.5	65.505
	M75			4	3	2	1.5	70.670
	M76		6	4	3	2	1.5	69.505
	M78					2		75.835
	M80		6	4	3	2	1.5	73.505
	M82					2		79.835
	M85		6	4	3	2	1.5	78.505
D80 X 6 teeth T2-type of inserts	M90		6	4	3	2		83.505
	M95		6	4	3	2		88.505

Machining Data

ISO	Material	Condition	Tensile Strength [N/mm ²]	Hardness HB	
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125
		≥ 0.25 %C	Annealed	650	190
		< 0.55 %C	Quenched and tempered	850	250
		≥ 0.55 %C	Annealed	750	220
			Quenched and tempered	1000	300
	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	600	200
		Quenched and tempered		930	275
				1000	300
				1200	350
	High alloyed steel, cast steel, and tool steel		Annealed	680	200
		Quenched and tempered	1100	325	
Stainless steel and cast steel		Ferritic/martensitic	680	200	
		Martensitic	820	240	
M	Stainless steel	Austenitic	600	180	
K	Cast iron nodular (GGG)		Ferritic/pearlitic	180	
			Pearlitic	260	
	Grey cast iron (GG)		Ferritic	160	
			Pearlitic	250	
	Malleable cast iron		Ferritic	130	
			Pearlitic	230	
N	Aluminum-wrought alloy		Not cureable	60	
			Cured	100	
	Aluminum-cast, alloyed	=<12% Si	Not cureable	75	
			Cured	90	
	Copper alloys	>12% Si	High temperature	130	
		>1% Pb		Free cutting	110
				Brass	90
				Electrolytic copper	100
Non-metallic		Duroplastics, fiber plastics			
		Hard rubber			
S	High temp. alloys	Fe based	Annealed	200	
				Cured	280
		Ni or Co based	Annealed	250	
				Cured	350
				Cast	320
	Titanium Ti alloys			RM 400	
		Alpha+beta alloys cured	RM 1050		
H	Hardened steel		Hardened	55 HRC	
			Hardened	60 HRC	
	Chilled cast iron		Cast	400	
	Cast iron		Hardened	55 HRC	

Cutting Speed (m/min)	Cutting Diameter											
	Feed (mm/tooth)											
	2	3	4	6	8	10	12	14	16	20	25	30
AH725												
100-250	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
80-210	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
65-170												
110-180	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.1	0.12	0.15	0.18
95-160	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.1	0.12	0.15	0.18
90-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
65-200	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
70-210	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
95-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
130-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
75-100	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
110-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
70-155	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
85-100	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.1	0.11
120-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
75-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
70-150	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
110-140	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
120-160	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
110-140	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.21	0.15	0.18	0.21
160-300	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
150-350	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18	0.21
100-250	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10	0.12
100-400	0.05	0.06	0.07	0.09	0.1	0.11	0.12	0.13	0.15	0.18	0.22	0.25
20-80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
20-80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05
55-65												
45-55												
90-105												
55-65												

h long cutting flute, reduce feed rate by 40%.

Thread Milling CNC Program for Internal Thread

Right-hand thread (climb milling) from bottom up.
 Program is based on tool center.
 This method of programming needs no tool radius compensation value, other than an offset for wear.

$$A = \frac{D_o - D}{2}$$

A = Radius of tool path
 D_o = Major thread diameter
 D = Cutting diameter

General Program

```
G90 G00 G54 G43 H1X0 Y0 Z10 S ...
G00 Z-(to thread depth)
G01 G91 G41 D1 X (A/2) Y -(A/2) Z0 F ...
G03 X(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G03 X0 Y0 I-(A) J0 Z (pitch)
G03 X-(A/2) Y(A/2) R(A/2) Z(1/8 pitch)
G01 G40 X -(A/2) Y -(A/2) Z0
G90 X0 Y0 Z0
```

Internal Thread

Example: M20x2.0 IN-RH (Thread depth 20 mm)

Tool : MTEC1010C27 2.0ISO

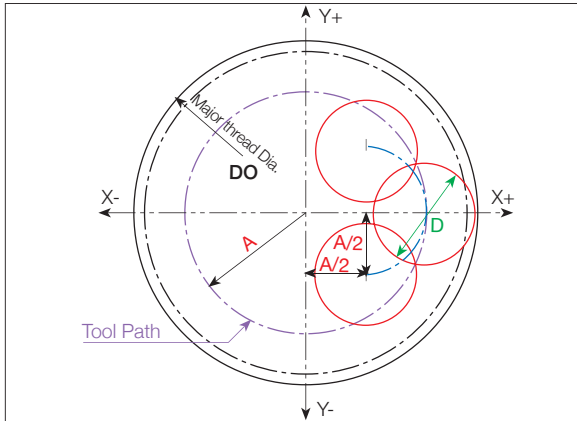
(Cutting dia. 10 mm)

$$A = (D_o - D) / 2 = (20 - 10) / 2 = 5$$

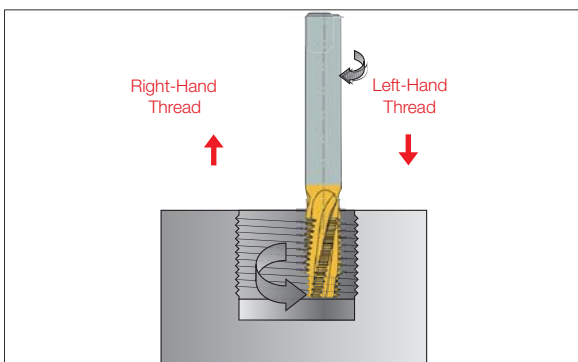
$$A/2 = 2.5$$

(Tool compensation of radius=0)

```
G90 G0 G54 G43 G17 H1X0 Y0 Z10 S4000
G0 Z-20
G01 G91 G41 D1X 2.5 Y-2.5 Z0 F840
G03 X2.5 Y2.5 R2.5 Z0.25
G03 X0 Y0 I-5.0 J0 Z2.0
G03 X-2.5 Y2.5 R2.5 Z0.25
G01 G40 X-2.5 Y-2.5 Z0
G90 G0 X0 Y0 Z0
M30
%
```

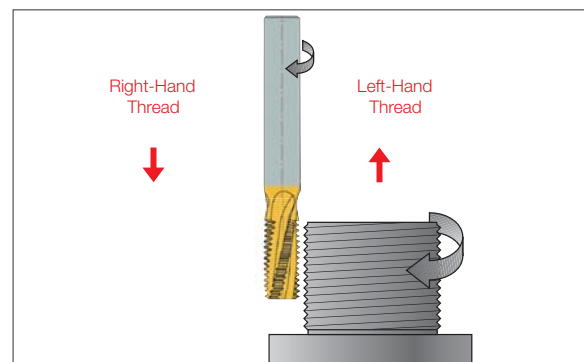


Internal Thread



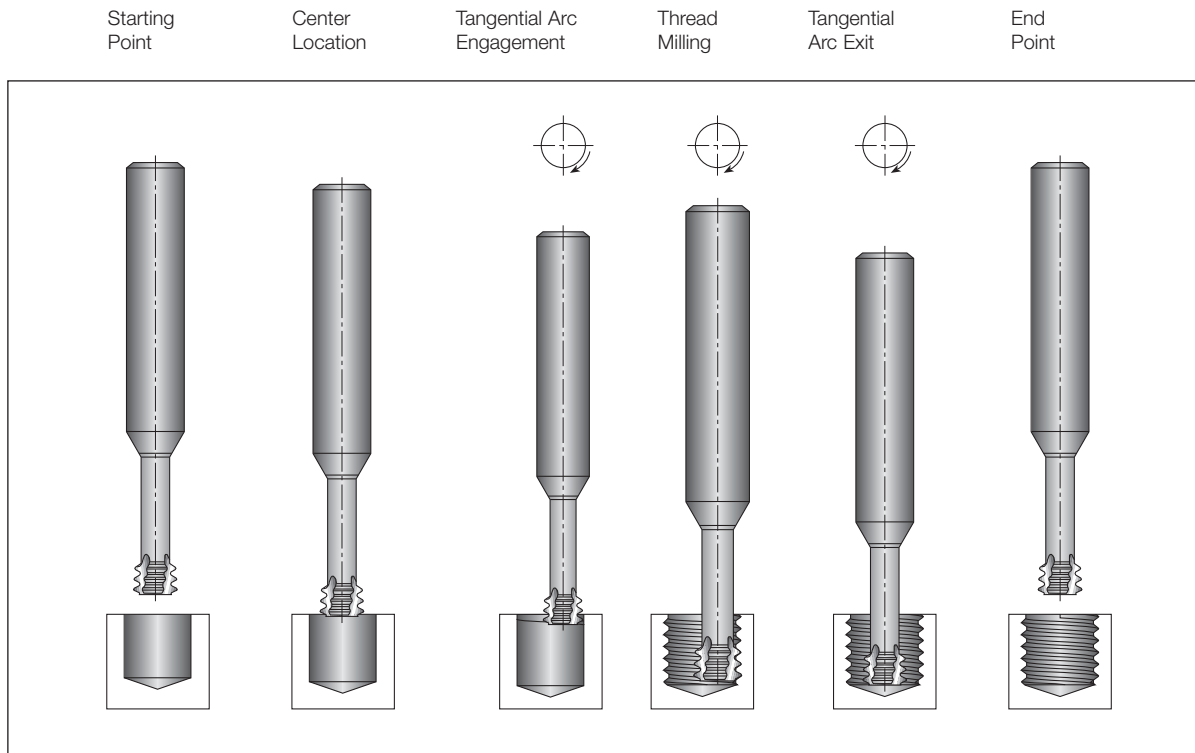
A thread milling operation is applicable for thread cutting in non-symmetrical parts utilizing the advantage of helical interpolation programs on modern machining centers.

External Thread



MTECS Small Diameter, Short Solid Carbide Thread Mills

Thread Milling - Recommended Procedure



Cutting Data for MTECS

ISO	Materials	Cutting Speed, m/min	Feed (mm/tooth) for Diameter (mm)												
			Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø15
P	Low & medium carbon steels	60-120	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	High carbon steels	60-90	0.04	0.05	0.06	0.08	0.09	0.1	0.12	0.13	0.14	0.14	0.16	0.17	0.18
	Alloy steels, treated steels	50-80	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
	Cast steels	70-90	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.1	0.12	0.13	0.14
M	Stainless steels	60-90	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.1	0.11	0.12	0.13
S	Nickel alloys, titanium alloys.	20-40	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
K	Cast iron	40-80	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
N	Aluminum	80-150	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
	Synthetics, duroplastics, thermoplastics	50-200	0.1	0.11	0.12	0.14	0.16	0.18	0.19	0.19	0.19	0.19	0.19	0.2	0.2

MTECS Small Diameter, Short Solid Carbide Thread Mills

The **MTECS** (Mill Thread Endmills Carbide Short) solid carbide thread mills are used for the production of small internal threads. These thread mills feature a short 3-tooth cutting zone with 3 flutes and a released neck between the cutting zone and the shank.

This unique tool design offers very precise profiles and a high performance **AH725** submicron carbide grade with **PVD** titanium aluminum nitride coating. The very short profile exerts a low force which minimizes tool bending. This facilitates parallel and high thread precision for the entire length.



Compared to taps, the **SOLIDTHREAD** is more accurate, thread machining is substantially faster and there is no danger of a broken tap being stuck in the hole.

Thread Mill vs. Tap

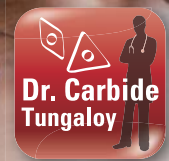
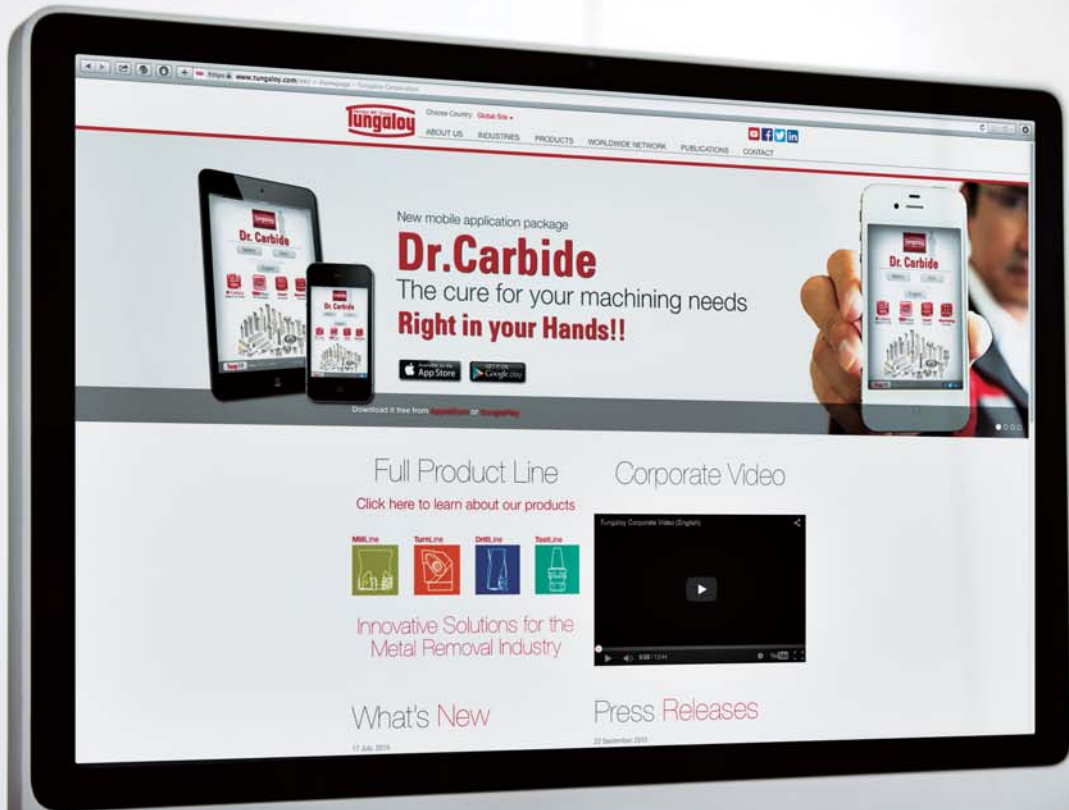
Features	Solid Carbide Thread Mills	Taps
Thread surface quality	High	Medium
Thread geometry	Very accurate	Medium
Thread tolerance	4H, 5H, 6H with std. cutter	6H with standard tap, 4H with special tap
Machining time	Shorter or same as tap	Short
Machining load	Very low	High
Range of thread diameters	Wide range of diameters	Specific tap for each thread size
Right-/Left-hand threading	Same cutter	Specific tap for right- and left-hand
Geometric shape	Full profile	Partial profile

Features

- Minimum thread size: **M1x0.25** (0.75mm bore diameter) up to M20x2.50
- 2xD and 3xD threading lengths
- High cutting speeds
- Short cycle time
- Low cutting forces due to the short contact profile resulting in accurate and parallel thread
- Prevents oval threads near thin walls
- No more dealing with broken taps
- Reliable threading in blind holes
- Excellent performance on hardened steel, high temperature alloys and titanium



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