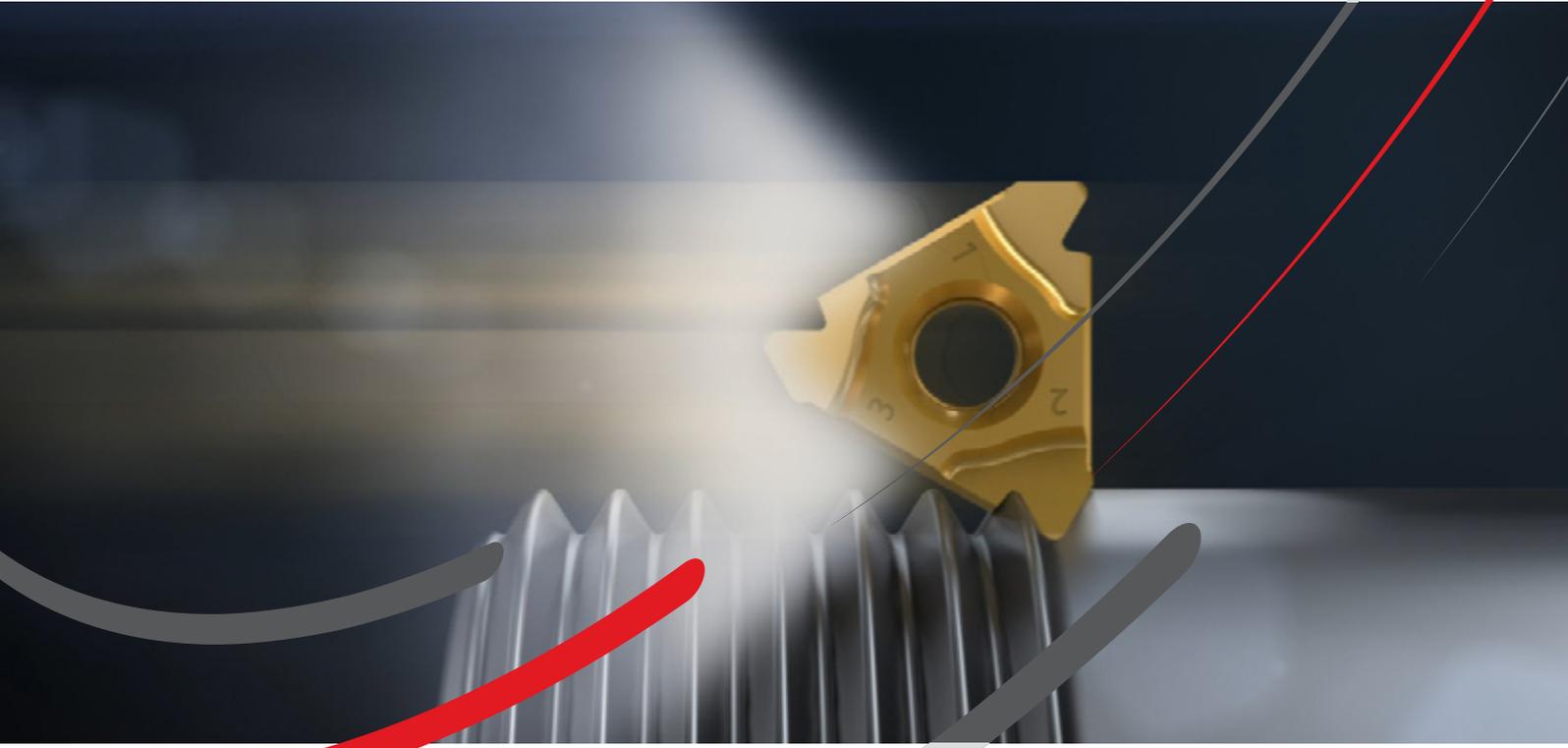


MACH
Supersonic
Threading

**UNMATCHED
PRODUCTIVITY**





Improved Rake & Reinforced Geometry

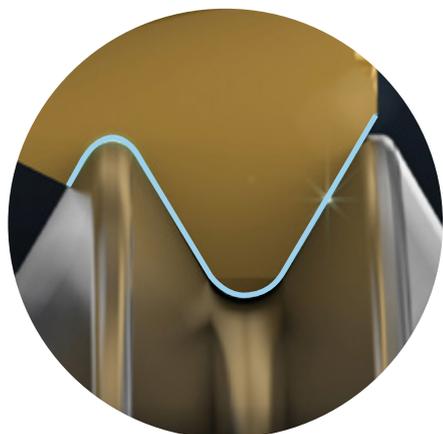
For high resistance with a reduced number of passes

VK8 Grade

High wear resistance for general purpose applications
AlTiN + TiN PVD coating

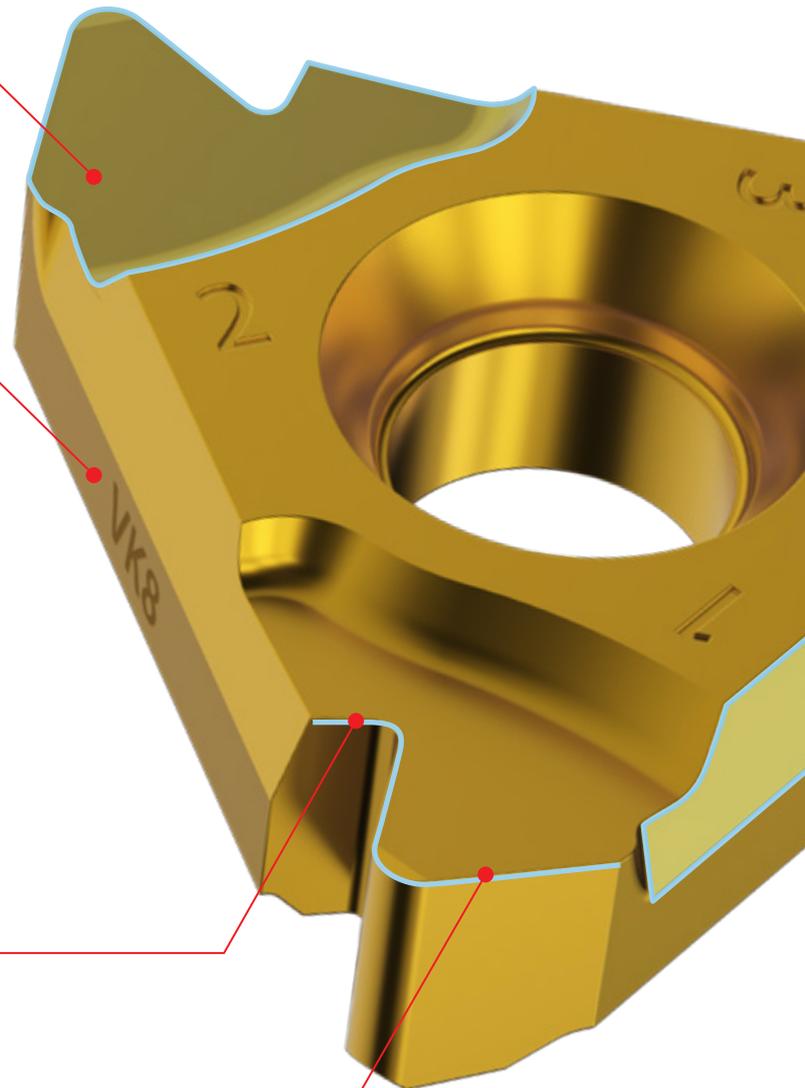
Improved Profile Design

Superior threading surface finish



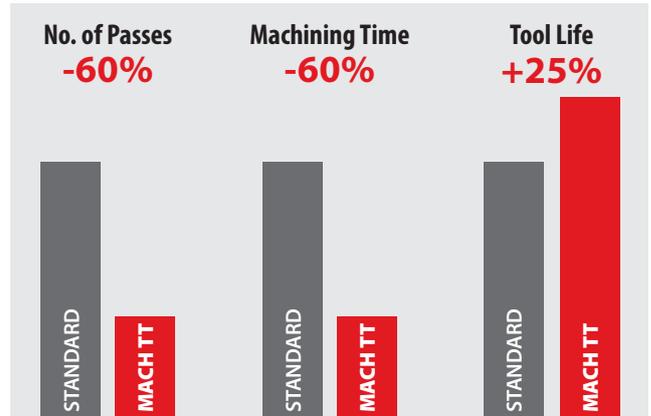
Advanced Surface Treatment

Reinforced cutting edge and smooth surface finish

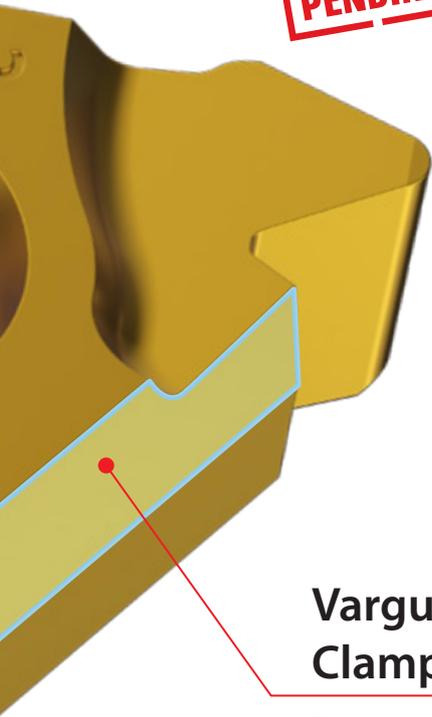




UNMATCHED PRODUCTIVITY



PATENT PENDING



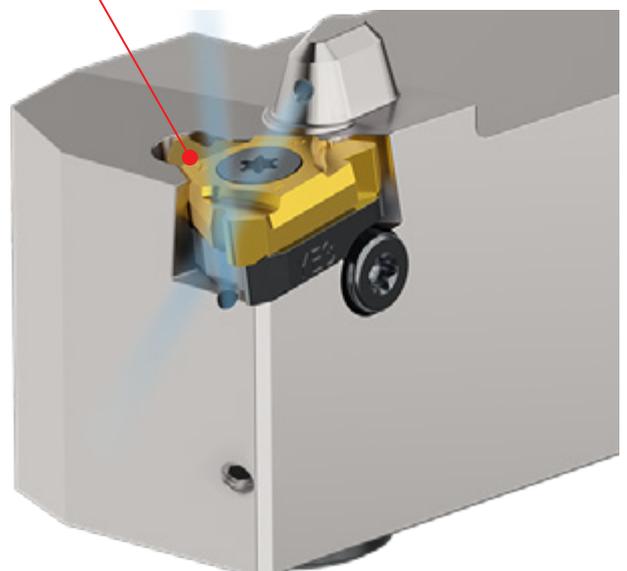
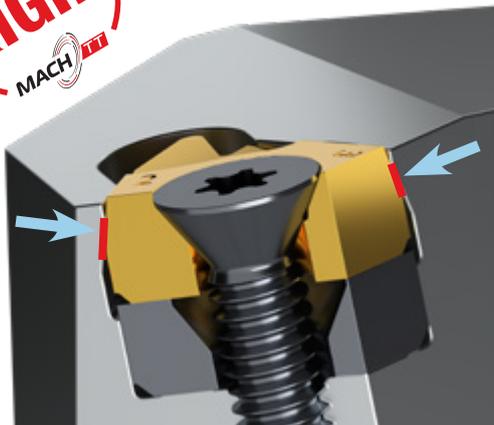
Vargus Dovetail Clamping System

Super rigid - designed for high loads

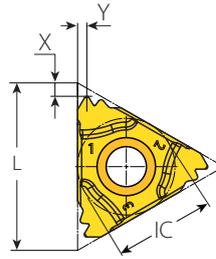
ADVANTAGES

- ✓ Significantly reduces the number of passes
- ✓ Dramatically decreases machining time
- ✓ Extended tool life
- ✓ Excellent surface finish

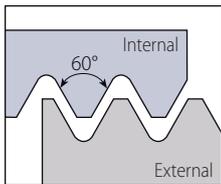
SUPER RIGID
MACH TT



External

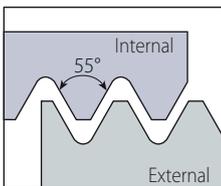


Partial Profile 60°



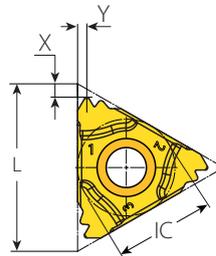
	Insert Size		Pitch		Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	TPI	RH		r	X	Y	RH	Toolholder
External	3/8"	16	0.5-1.5	48-16	3DTERA60...	16DTERA60...	0.05	1.5	1.4		
			1.75-3.0	14-8	3DTERG60...	16DTERG60... *	0.27	1.4	1.7	YE3	AL....-3DT
			0.5-3.0	48-8	3DTERA60...	16DTERA60... *	0.08	1.1	1.7		

Partial Profile 55°

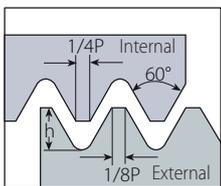


	Insert Size		Pitch		Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	TPI	RH		r	X	Y	RH	Toolholder
External	3/8"	16	0.5-1.5	48-16	3DTERA55... *	16DTERA55... *	0.05	1.5	1.5		
			0.5-3.0	48-8	3DTERAG55... *	16DTERAG55... *	0.07	1.1	1.7	YE3	AL....-3DT
			1.75-3.0	14-8	3DTERG55... *	16DTERG55... *	0.21	1.1	1.6		

External



ISO Metric

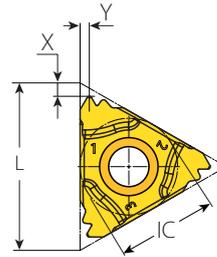


Defined by: DIN 13
Tolerance class: 6g

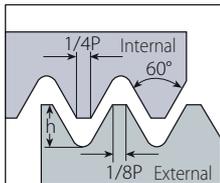
	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	0.7	3DTER0.7ISO... *	16DTER0.7ISO... *	0.43	1.6	0.5		
			0.75	3DTER0.75ISO... *	16DTER0.75ISO... *	0.46	1.6	0.5		
			0.8	3DTER0.8ISO... *	16DTER0.8ISO... *	0.49	1.6	0.6		
			1.0	3DTER1.0ISO... *	16DTER1.0ISO... *	0.61	1.5	0.6		
			1.25	3DTER1.25ISO... *	16DTER1.25ISO... *	0.77	1.5	0.8		
			1.5	3DTER1.5ISO... *	16DTER1.5ISO... *	0.92	1.4	0.9	YE3	AL....-3DT
			1.75	3DTER1.75ISO... *	16DTER1.75ISO... *	1.07	1.4	1.2		
			2.0	3DTER2.0ISO... *	16DTER2.0ISO... *	1.23	1.4	1.3		
			2.5	3DTER2.5ISO... *	16DTER2.5ISO... *	1.53	1.4	1.4		
			3.0	3DTER3.0ISO... *	16DTER3.0ISO... *	1.84	1.3	1.5		
			3.5	3DTER3.5ISO... *	16DTER3.5ISO... *	2.15	1.3	1.8		

* Available in Q2 2022

External



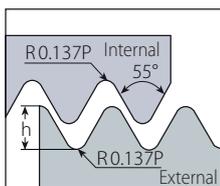
American UN



Defined by: ANSI B1.1
Tolerance class: 2A

	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	32	3DTER32UN... *	16DTER32UN... *	0.49	1.6	0.6	YE3	AL....-3DT
			28	3DTER28UN... *	16DTER28UN... *	0.56	1.6	0.6		
			27	3DTER27UN... *	16DTER27UN... *	0.58	1.6	0.6		
			24	3DTER24UN... *	16DTER24UN... *	0.65	1.5	0.7		
			20	3DTER20UN... *	16DTER20UN... *	0.78	1.5	0.8		
			18	3DTER18UN... *	16DTER18UN... *	0.87	1.4	0.9		
			16	3DTER16UN... *	16DTER16UN... *	0.97	1.4	1.0		
			14	3DTER14UN... *	16DTER14UN... *	1.11	1.4	1.2		
			13	3DTER13UN... *	16DTER13UN... *	1.20	1.4	1.3		
			12	3DTER12UN... *	16DTER12UN... *	1.30	1.4	1.4		
			11.5	3DTER11.5UN... *	16DTER11.5UN... *	1.35	1.4	1.4		
			11	3DTER11UN... *	16DTER11UN... *	1.42	1.4	1.4		
			10	3DTER10UN... *	16DTER10UN... *	1.56	1.4	1.7		
			9	3DTER9UN... *	16DTER9UN... *	1.73	1.4	1.6		
8	3DTER8UN... *	16DTER8UN... *	1.95	1.3	1.6					

Whitworth for BSW, BSP

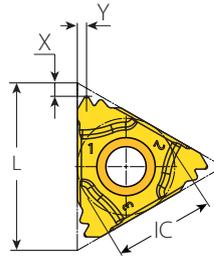


Defined by:
B.S.84:1956, DIN 259,
ISO228/1:1982
Tolerance class:
Medium class A

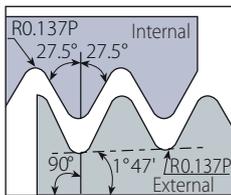
	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	28	3DTER28W... *	16DTER28W... *	0.58	1.6	0.6	YE3	AL....-3DT
			26	3DTER26W... *	16DTER26W... *	0.63	1.6	0.6		
			20	3DTER20W... *	16DTER20W... *	0.81	1.5	0.7		
			19	3DTER19W... *	16DTER19W... *	0.86	1.5	0.8		
			18	3DTER18W... *	16DTER18W... *	0.90	1.4	1.3		
			16	3DTER16W... *	16DTER16W... *	1.02	1.4	1.4		
			14	3DTER14W... *	16DTER14W... *	1.16	1.4	1.2		
			12	3DTER12W... *	16DTER12W... *	1.36	1.4	1.3		
			11	3DTER11W... *	16DTER11W... *	1.48	1.4	1.3		
			10	3DTER10W... *	16DTER10W... *	1.63	1.4	1.3		
9	3DTER9W... *	16DTER9W... *	1.81	1.4	1.7					
8	3DTER8W... *	16DTER8W... *	2.03	1.1	1.5					

* Available in Q2 2022

External



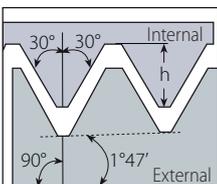
BSPT



	Insert Size		Ordering Code	Market Description	Dimensions mm			Anvil		
	IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder	
External	3/8"	16	28	3DTER28BSPT... *	16DTER28BSPT... *	0.58	1.6	0.6	YE3	AL....-3DT
			19	3DTER19BSPT... *	16DTER19BSPT... *	0.86	1.5	0.8		
			14	3DTER14BSPT... *	16DTER14BSPT... *	1.16	1.4	1.4		
			11	3DTER11BSPT... *	16DTER11BSPT... *	1.48	1.4	1.5		

Defined by: B.S. 21:1985
Tolerance class:
Standard BSPT

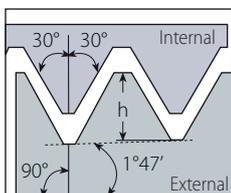
NPT



	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder	
External	3/8"	16	27	3DTER27NPT... *	16DTER27NPT... *	0.66	1.6	0.8	YE3	AL....-3DT
			18	3DTER18NPT... *	16DTER18NPT... *	1.01	1.5	0.9		
			14	3DTER14NPT... *	16DTER14NPT... *	1.33	1.5	1.4		
			11.5	3DTER11.5NPT... *	16DTER11.5NPT... *	1.64	1.5	1.4		
			8	3DTER8NPT... *	16DTER8NPT... *	2.42	1.2	1.8		

Defined by:
ANSI B1.20.1-1983
Tolerance class:
Standard NPT

NPTF

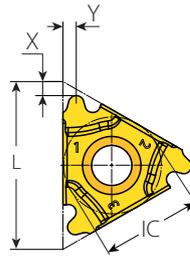


	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH	h min	X	Y	RH	Toolholder	
External	3/8"	16	27	3DTER27NPTF... *	16DTER27NPTF... *	0.64	1.6	0.8	YE3	AL....-3DT
			18	3DTER18NPTF... *	16DTER18NPTF... *	1.00	1.5	1.4		
			14	3DTER14NPTF... *	16DTER14NPTF... *	1.35	1.5	1.4		
			11.5	3DTER11.5NPTF... *	16DTER11.5NPTF... *	1.63	1.5	1.4		
			8	3DTER8NPTF... *	16DTER8NPTF... *	2.38	1.2	1.7		

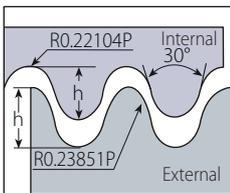
Defined by:
ANSI B1.20.3-1976
Tolerance class:
Standard NPTF

* Available in Q2 2022

External



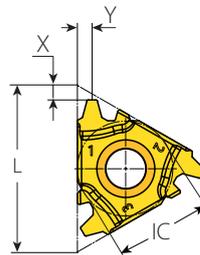
Round (405)



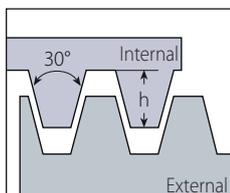
	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	8	3DTER8RD... *	16DTER8RD... *	1.59	1.4	1.3	YE3	AL....-3DT
			6	3DTER6RD... *	16DTER6RD... *	2.12	1.4	1.7		

Defined by: DIN 405
Tolerance class: 7h

External



Trapez

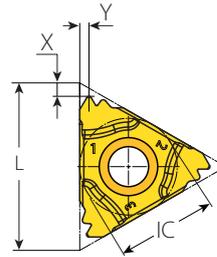


	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	1.5	3DTER1.5TR... *	16DTER1.5TR... *	0.90	1.5	1.4	YE3	AL....-3DT
			2.0	3DTER2.0TR... *	16DTER2.0TR... *	1.25	1.5	1.4		
			3.0	3DTER3.0TR... *	16DTER3.0TR... *	1.75	1.4	1.5		

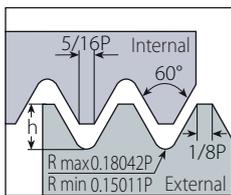
Defined by: DIN 103
Tolerance class: 7e

* Available in Q2 2022

External



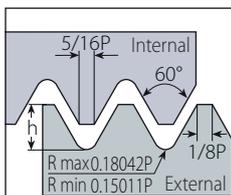
UNJ



Defined by: MIL-S-8879C
Tolerance class: 3A

	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	32	3DTER32UNJ... *	16DTER32UNJ... *	0.46	1.6	0.6	YE3	AL....-3DT
			28	3DTER28UNJ... *	16DTER28UNJ... *	0.52	1.5	0.6		
			24	3DTER24UNJ... *	16DTER24UNJ... *	0.61	1.5	0.7		
			20	3DTER20UNJ... *	16DTER20UNJ... *	0.73	1.5	0.8		
			18	3DTER18UNJ... *	16DTER18UNJ... *	0.81	1.4	0.8		
			16	3DTER16UNJ... *	16DTER16UNJ... *	0.92	1.4	0.9		
			14	3DTER14UNJ... *	16DTER14UNJ... *	1.05	1.4	1.2		
			12	3DTER12UNJ... *	16DTER12UNJ... *	1.22	1.4	1.2		

MJ

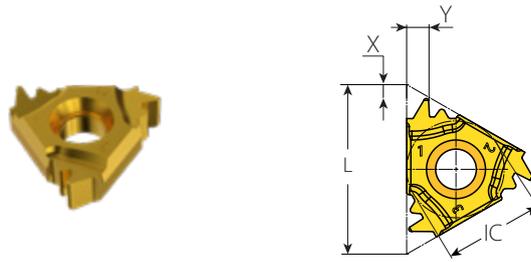


Defined by: ISO 5855
Tolerance class: 4h-6h

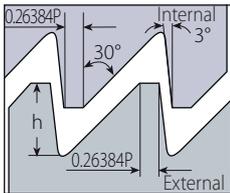
	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	1.0	3DTER1.0MJ... *	16DTER1.0MJ... *	0.58	1.5	0.7	YE3	AL....-3DT
			1.5	3DTER1.5MJ... *	16DTER1.5MJ... *	0.87	1.4	0.9		

* Available in Q2 2022

External



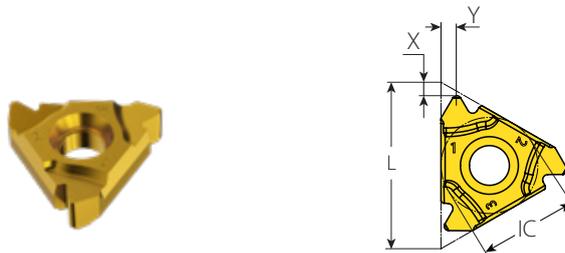
Metric Buttress



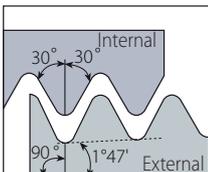
	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	mm	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	2.0	3DTER2.0SAGE... *	16DTER2.0SAGE... *	1.74	1.4	2.1	YE3	AL....-3DT

Defined by: DIN 513
Tolerance class: Medium Class

External



API Round

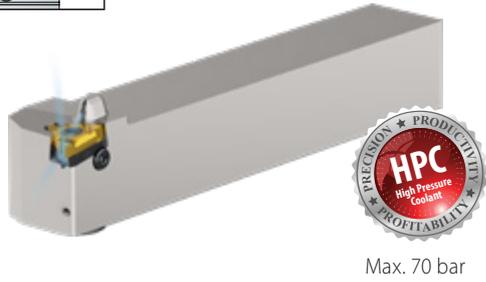
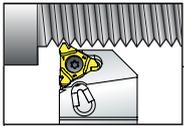


	Insert Size		Pitch	Ordering Code	Market Description	Dimensions mm			Anvil	
	IC	L mm	TPI	RH		h min	X	Y	RH	Toolholder
External	3/8"	16	10	3DTER10APIRD... *	16DTER10APIRD... *	1.41	1.4	1.3	YE3	AL....-3DT
			8	3DTER8APIRD... *	16DTER8APIRD... *	1.81	1.3	1.6		

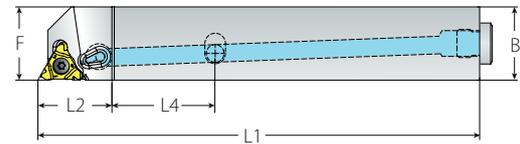
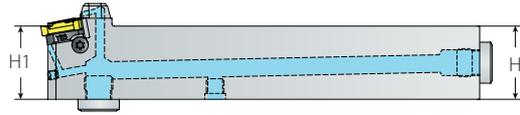
Defined by: API SPEC. 5B
Tolerance class: Standard API RD

* Available in Q2 2022

External Toolholders

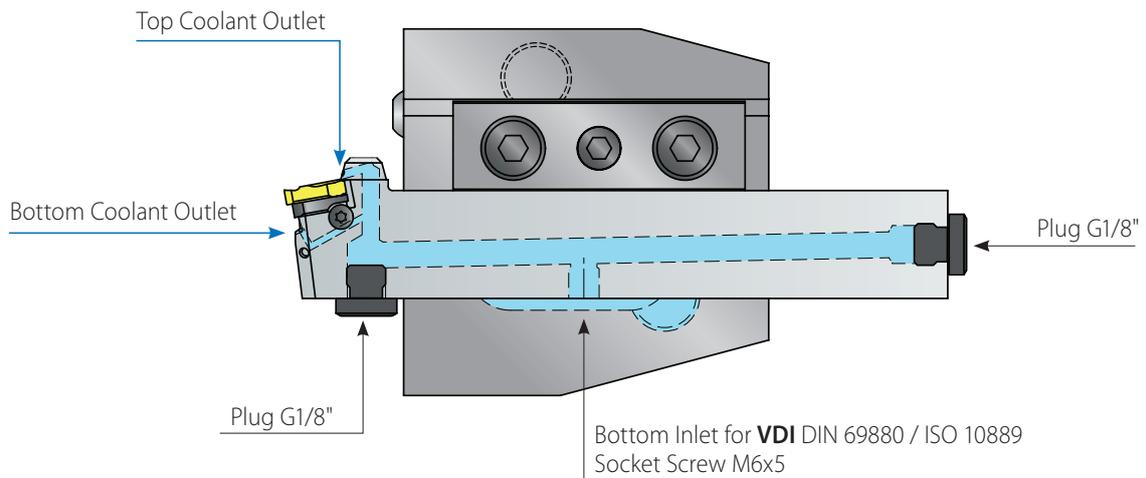


Max. 70 bar



Standard with Coolant

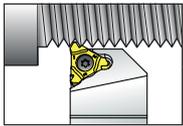
Insert Size	Ordering Code	Market Description	Dimensions mm				Spare Parts						
IC	RH		H=H1=B	F	L1	L2	L4	Insert Screw	Anvil Screw	Torx Key	Anvil RH	Plug Screw x 2	Socket Screw
3/8"	ALCN16-3DT	ALCN16-16DT	16	16	100		25	SA3T (3.0 Nm)	SY3T	K3T	YE3	Plug G1/8"	Socket Screw M6x5
	ALCN20-3DT	ALCN20-16DT	20	20	125	25.4	30						
	ALCN25-3DT	ALCN25-16DT	25	25	150		35						
	ALCN32-3DT	ALCN32-16DT	32	32	170		35						



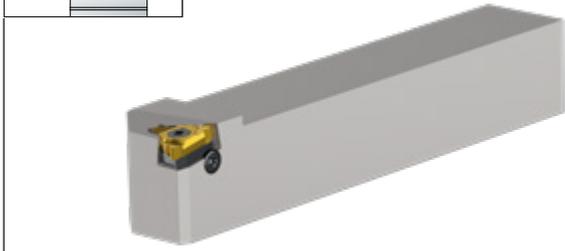
When reassembling the M6X5 plug, it is necessary to use LOCTITE 542.

The following HPC accessories (not included) can be ordered separately:

Image	Ordering Code	Item Number
	Tube Connector 25-6	013-00941
	Angled Fitting G1_8x6	013-00947
	Straight Fitting G1_8x6	013-00942



External Toolholders



Standard

Insert Size	Ordering Code	Market Description	Dimensions mm			
IC	RH		H=H1=B	F	L1	L2
3/8"	AL12-3DT	AL12-16DT	12	12	84.5	20.7
	AL16-3DT	AL16-16DT	16	16	100	22.0
	AL20-3DT	AL20-16DT	20	20	127	24.5
	AL25-3DT	AL25-16DT	25	25	150	25.8
	AL32-3DT	AL32-16DT	32	32	170	29.5

Spare Parts

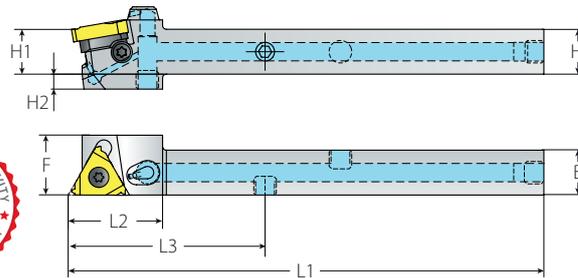
Insert Screw	Anvil Screw	Torx Key	Anvil RH
SA3T (3.0 Nm)	SY3T	K3T	YE3



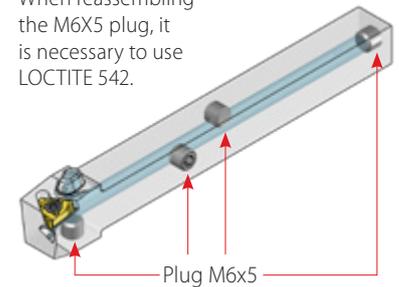
External Toolholders



Max. 70 bar



When reassembling the M6X5 plug, it is necessary to use LOCTITE 542.



Standard with Coolant for Swiss Type Machines

Insert Size	Ordering Code	Market Description	Dimensions mm					
IC	RH		H=H1=B	F	L1	L2	L3	H2
3/8"	ALCS12-3DT	ALCS12-16DT	12	16	126.5	25.4	52.5	4

Spare Parts

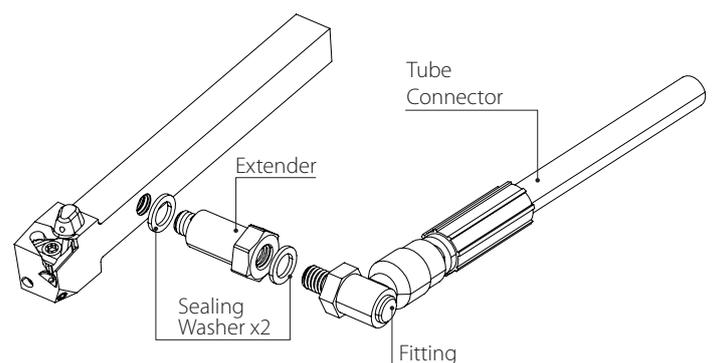
Insert Screw	Anvil Screw	Torx Key	Anvil RH	Plug x 4
SA3T (3.0 Nm)	SY3T	K3T	YE3	Plug M6x5

The following HPC accessories (not included) can be ordered separately:

Image	Ordering Code	Item Number
	Tube Connector 25-6	013-00941
	Angled Fitting M6x6	013-01011
	Straight Fitting M6x6	013-01012
	Extender M6x5	013-01096
	Sealing Washer M6	013-01097

When working with Shank 12x12 the extender is necessary to connect the fitting.

How to Assemble the Accessories for Coolant Inlets on Shank 12x12



Recommended Cutting Speeds Vc [m/min] for MACH TT

Material Group	Vargus No.	Material	Hardness Brinell HB	Vc [m/min]	
				VK8	
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	115-175
	2		Medium Carbon (C=0.25-0.55%)	150	100-165
	3		High Carbon (C=0.55-0.85%)	170	90-155
	4	Low Alloy Steel (alloying elements ≤5%)	Non Hardened	180	100-165
	5		Hardened	275	75-130
	6		Hardened	350	70-125
	7	High Alloy Steel (alloying elements >5%)	Annealed	200	80-110
	8		Hardened	325	50-95
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	70-120
	10		High Alloy (alloying elements >5%)	225	60-110
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	70-120
	12		Hardened	330	60-105
	13	Stainless Steel Austenitic	Austenitic	180	90-130
	14		Super Austenitic	200	40-100
	15	Stainless Steel Cast Ferritic	Non Hardened	200	90-110
	16		Hardened	330	65-100
	17	Stainless Steel Cast Austenitic	Austenitic	200	85-100
	18		Hardened	330	60-100
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	60-70
	29		Pearlitic (long chips)	230	60-135
	30	Grey Cast Iron	Low Tensile Strength	180	70-120
	31		High Tensile Strength	260	60-105
	32	Nodular Sg Iron	Ferritic	160	125-145
	33		Pearlitic	260	90-110
N Non-Ferrous Metals	34	Aluminum Alloys Wrought	Non Aging	60	100-325
	35		Aged	100	80-205
	36	Aluminum Alloys	Cast	75	200-370
	37		Cast & Aged	90	200-260
	38	Aluminum Alloys	Cast Si 13-22%	130	60-165
	39	Copper and Copper Alloys	Brass	90	80-210
	40		Bronze And Non Leaded Copper	100	80-235
	S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200
20		Aged (iron based)		280	30-50
21		Annealed (nickel or cobalt based)		250	20-30
22		Aged (nickel or cobalt based)		350	15-25
23		Titanium Alloys	Pure 99.5 Ti	400Rm	140-160
24			α+β Alloys	1050Rm	50-70
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRC	45-60
	26			51-55HRC	40-50

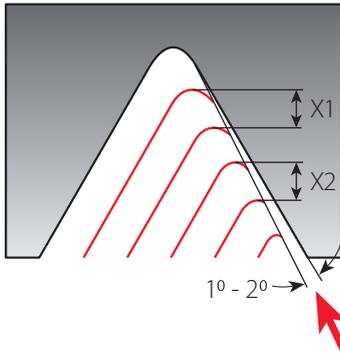
Grade	Application	Sample
VK8	High wear resistance for general purpose applications. AlTiN+TiN PVD Coating	

Number of Passes for MACH TT

Pitch	mm	0.70	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50
	TPI	36	32	24	20	16	14	12	10	8	7
No. of passes - MACH TT		2-4	2-4	2-4	3-5	3-6	4-7	4-7	5-8	6-9	7-11
<i>In comparison (for your reference): No. of passes for Standard tools</i>		(4-7)	(4-7)	(4-8)	(5-9)	(6-10)	(7-12)	(7-12)	(8-14)	(9-16)	(10-18)



Infeed Method and Type of Passes



For MACH TT tools, it is recommended:

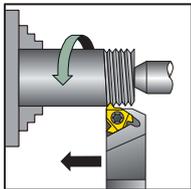
1. Use the flank infeed method (modified) with $1^\circ - 2^\circ$.
2. Use the constant depth type of passes. $X1 = X2$

Thread Turning Methods for Symmetrical Inserts

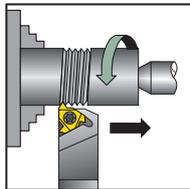
Thread	Inserts & Toolholder	Rotation	Feed Direction	Helix Method	Drawing
Right Hand External	EX RH	Counterclockwise	Towards chuck	Regular	A
Left Hand External	EX RH	Counterclockwise	From chuck	Reversed	B

MACH TT tools are designed for Right Hand applications, but can also be used for Left Hand threads.

External RH Thread (A)



External LH Thread (B)



Anvils

	Resultant Helix Angle		2.5°	1.5°	0.5°
	Insert Size	Holder	Ordering Code		
	IC	L mm			
	3/8"	16	ER	YE3-1P	YE3 YE3-1N

Insert & Toolholder Combinations:

- | MACH toolholders are suitable with MACH inserts only
- | Standard toolholders can be used with MACH inserts **but is less recommended**

	MACH TT Insert	Standard Insert
MACH TT Toolholder		
Standard Toolholder		