

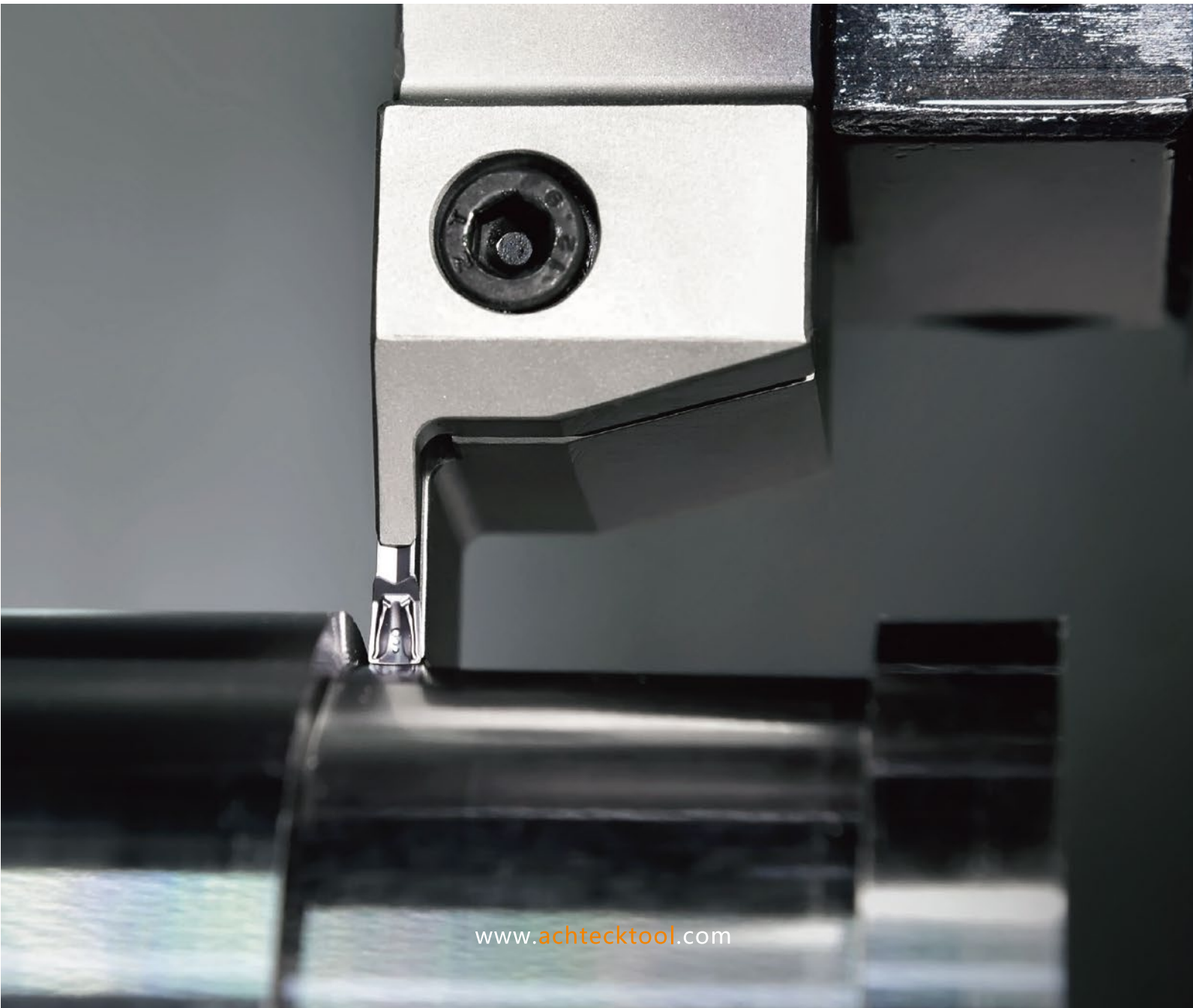
ACHTECK

NEW
PRODUCT!

TS

Grooving Series

Multifunctional machining insert
For parting off, grooving, turning-grooving and facing



Achteck is launching a new product-the TS type which is double ended insert. It is multifunctional machining insert such as external grooving, external turning, internal grooving, internal turning, face grooving, face turning and parting off. The insert designed optimal chip breaker and can be provided a wide chip breaker range.

The insert designed sharp cutting edge and provides a good surface finish on work piece.

TS insert has double clearance angle which can be machined smaller diameter without interference to work piece during a machining.

TS insert provides high accuracy insert positioning and reliable repeatability on the holder when insert cutting edge is changed.

The insert can be mounted on Achteck standard holders.

TS insert with Achteck excellent machining performance PVD grade AP301U is applied and provides higher performance, longer tool life and reduce machining cost.

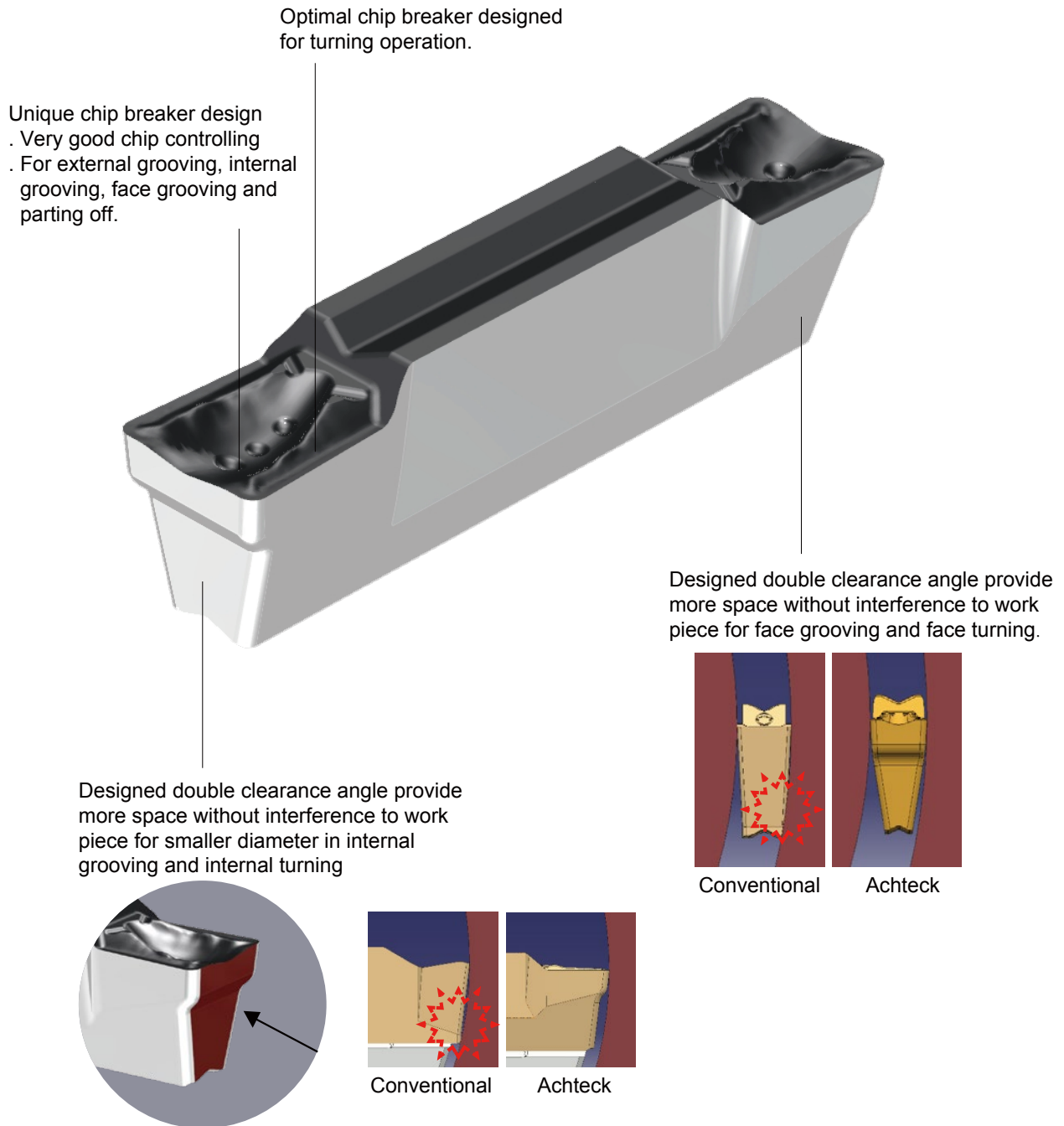
TS insert is the first time to be launched into market and provide insert designation system to give better understanding.

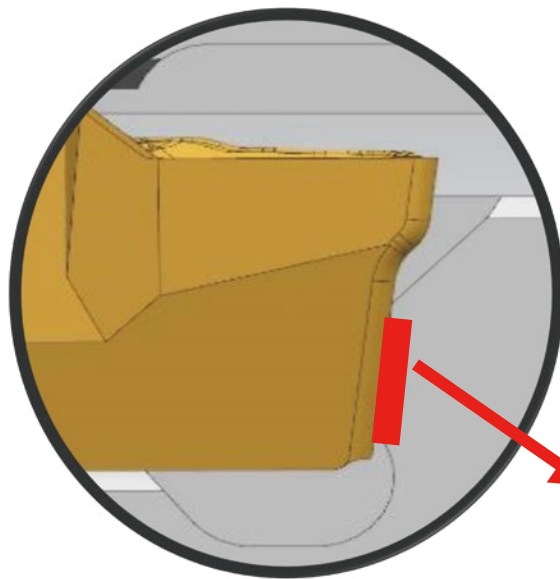
TS



Multifunctional applications: For grooving, parting off and turning

• Product features





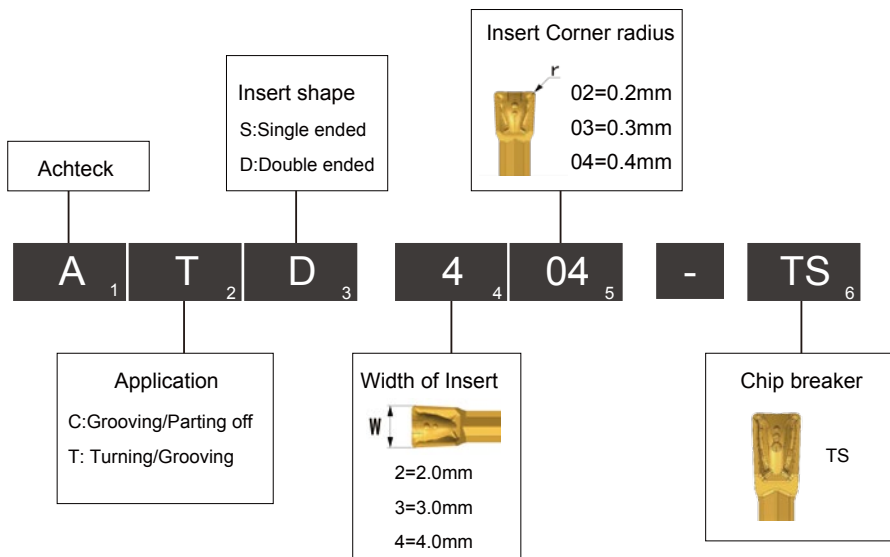
Insert contacting area is very accuracy to holder pocket

Excellent insert repeatability

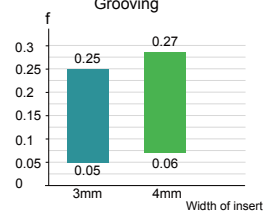
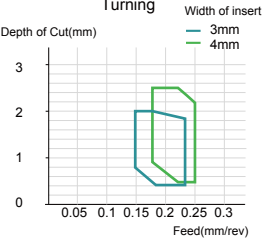
Contact area
Insert&Pocket

1. Double ended insert.
2. Multifunctional machining application such as external grooving, external turning, face grooving, face turning, internal turning, internal grooving and parting off.
3. Enhanced chip breaker provides thin and narrow chips in grooving application.
4. Sharp cutting edge reduce cutting force and excellent chip breaker design.
5. Application for steels, stainless steels and cast iron.
6. For low feed rate application.

Insert designation system



Chip breaker features

Geometry	Insert picture	Edge preparation	Recommended feed (mm/rev)	Features
TS			Grooving  Turning 	1.Double ended insert 2.Multifunctional machining application such as external grooving, external turning, face grooving, face turning, internal turning, internal grooving and parting off. 3.Enhanced chip breaker provides thin and narrow chips in grooving application. 4.Sharp cutting edge reduce cutting force and excellent chip breaker design. 5.Application for steels, stainless steels and cast iron. 6.For low feed rate application.

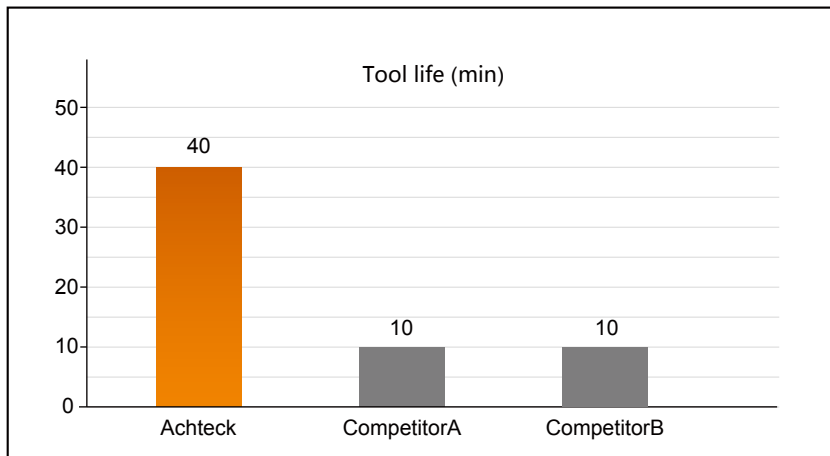
• Comparison internal tool life test result

Test 1

Cutting conditions

Material	Operation	Cutting parameters			
		Vc(m/min)	f(mm/rev)	ap(mm)	Coolant
Alloy steel	Grooving	200	0.2	10	Yes

Test result



Insert: ATD 303-TS AP301U

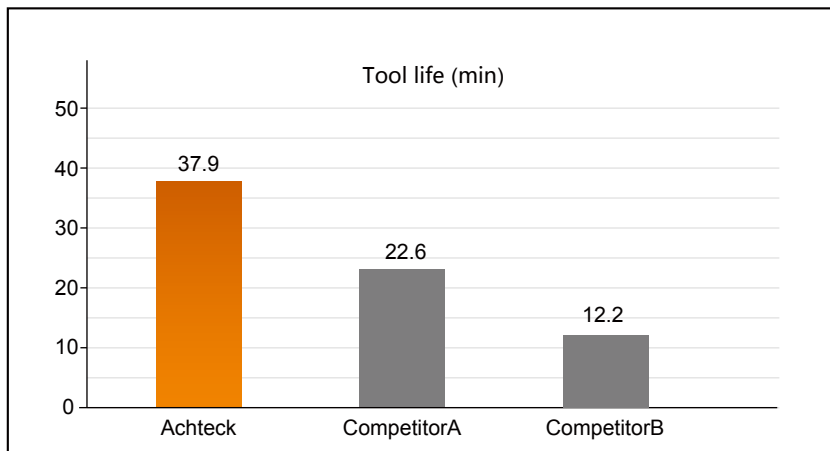
Holder: ATSEL 2525-3T12

Test 2

Cutting conditions

Material	Operation	Cutting parameters			
		Vc(m/min)	f(mm/rev)	ap(mm)	Coolant
316L stainless steel	Grooving	120	0.2	10	Yes

Test result



Insert: ATD 303-TS AP301U

Holder: ATSEL 2525-3T12

Case stories

Component description: Valve parts

Material: 304 stainless steel

Material hardness: HB 180

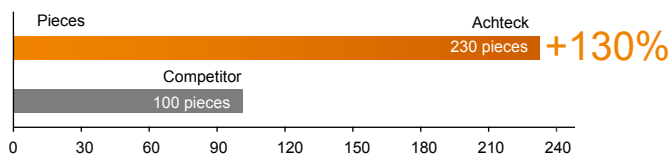
Insert: ATD 303-TS AP301U

Holder: ATSER 2525-3T12

Machining operation: External groove

Cutting parameters: $V_c=120\text{m/min}$, $f=0.15\text{mm}$, $a_p=3\text{mm}$

Wet machining



Component description: Cylinder guide sleeve

Material: Carbon steel

Material hardness: HB180

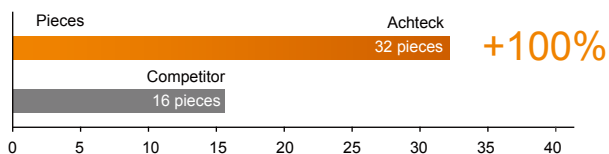
Insert: ATD 303-TS AP301U

Holder: ATSER 2525-3T12

Machining operation: External groove

Cutting parameters: $V_c=200\text{m/min}$, $f=0.15\text{mm}$, $a_p=1\text{mm}$

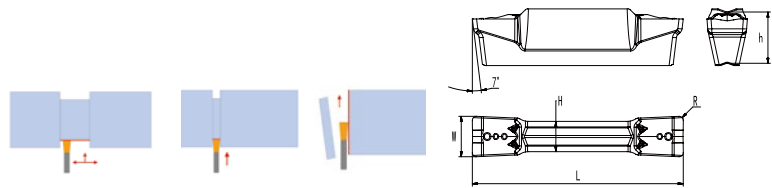
Wet machining



● Insert stock item

- TS

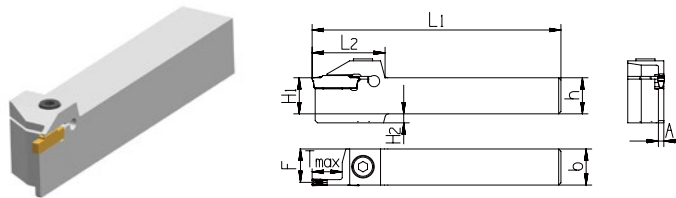
For turning, grooving and parting off



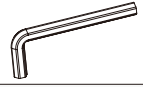
Insert	Type	Dimension					Grooving		Turning		Grade
		W	R	L	H	h	f	T _{max}	f	ap	AP301U
	ATD 303-TS	3	0.3	20.7	2.2	5.1	0.05-0.25	19.7	0.15-0.23	0.45-2.0	●
	ATD 404-TS	4	0.4	20.7	3.0	5.1	0.06-0.27	19.7	0.18-0.25	0.50-2.50	●

Remark: ● represent for standard stock

● Holders stock item



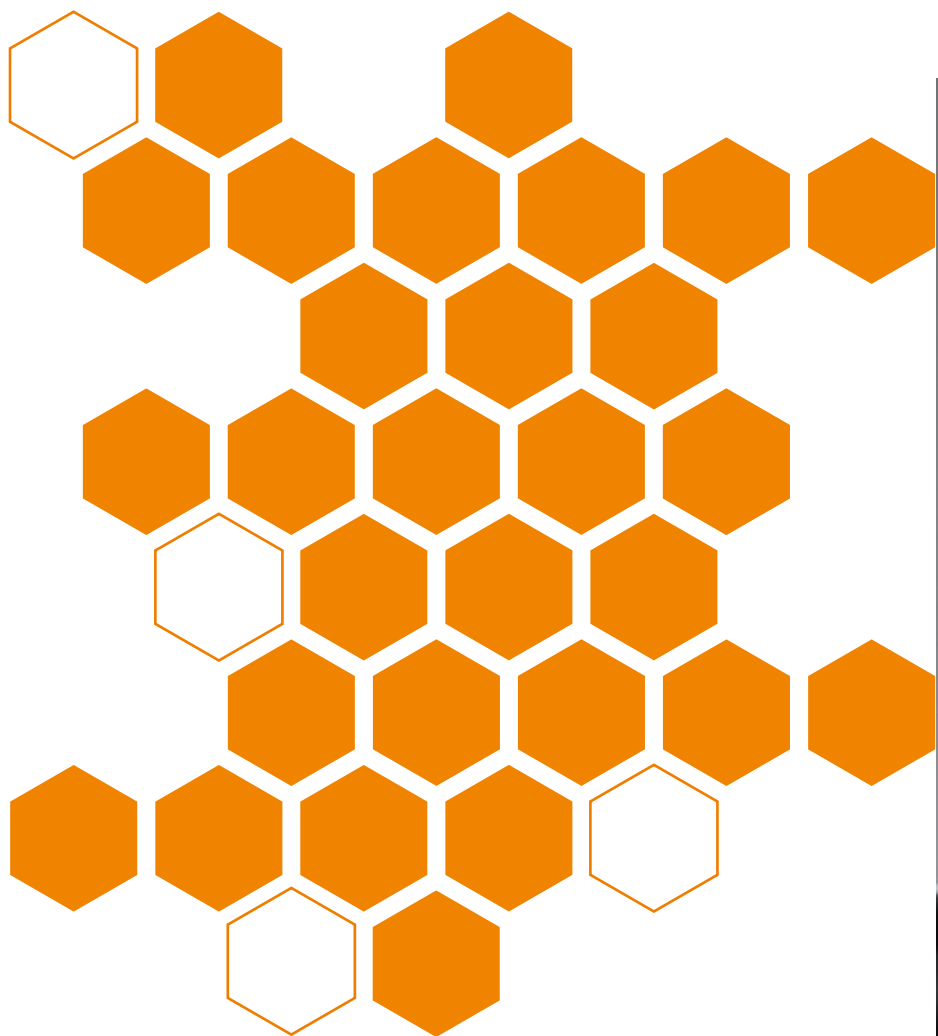
Holder type		holder dimension									Insert
		h	b	H ₁	H ₂	A	L ₁	L ₂	F	T _{max}	
ATSER/L	1616-3T12	16	16	16	4	2.4	110	32	14.8	12	ATD 3
	1616-3T20	16	16	16	4	2.4	110	38	14.8	20	
	2020-3T09	20	20	20	0	2.4	125	32	18.8	9	
	2020-3T12	20	20	20	0	2.4	125	32	18.8	12	
	2020-3T20	20	20	20	0	2.4	125	38	18.8	20	
	2525-3T09	25	25	25	0	2.4	150	32	23.8	9	
	2525-3T12	25	25	25	0	2.4	150	32	23.8	12	
ATSER/L	2525-3T20	25	25	25	0	2.4	150	38	23.8	20	ATD 4
	2020-4T15	20	20	20	0	3	125	32	18.5	15	
	2020-4T25	20	20	20	0	3	125	45	18.5	25	
	2525-4T15	25	25	25	0	3	150	32	23.5	15	

Holder type	Spare part	
	Screw	Wrench
		
ATSER/L 1616-3	ASH M5x0.8x16	AWH4
ATSER/L 2020-3	ASH M5x0.8x20	AWH4
ATSER/L 2525-3	ASH M5x0.8x25	AWH4
ATSER/L 1616-4	ASH M6x1.0x16	AWH5
ATSER/L 2020-4	ASH M6x1.0x20	AWH5
ATSER/L 2525-4	ASH M6x1.0x25	AWH5

Recommended cutting speed by materials

Machined Materials				Achteck Grooving Grades Application Ranges					
ISO	Material classification	Tensile strength (N/mm²)	Hardness (HB)	Turning&Grooving			Parting off&Grooving		
				AP301U			AP301U		
				PVD			PVD		
				P15-35			P15-35		
				M15-35			M15-35		
				K15-35			K15-35		
				-			-		
				-			-		
				-			-		
				Feed rate (mm/rev)					
				Min	Medium	Max	Min	Medium	Max
				Cutting speed (m/min)					
P	Non-alloyed steel	<600	<180	200	180	160	180	145	130
		<950	<280	180	160	140	145	130	115
	Alloyed steel	700-950	200-280	160	140	120	130	115	100
		950-1200	280-355	140	120	100	115	100	80
		1200-1400	355-415	130	110	90	105	90	170
M	Duplex stainless steel	778	230	170	140	110	135	110	85
	Austenitic stainless steel	675	200	205	170	130	165	135	105
	Precipitation-hardening stainless steel	1013	300	195	150	100	155	120	80
K	Grey cast iron	700	220	230	195	120	185	140	95
	Nodular Cast iron	880	260	180	140	95	145	110	80
	Malleable cast iron	800	250	145	110	80	115	90	65
S	Fe based alloy	943	280						
	Co based alloy	1076	320						
	Ni based alloy	1177	350						
	Ti-alloy	1262	370						
N	Aluminum	260	75						
	Aluminum alloy	447	130						
H	Hardened steel	-	50-60HRC						
	Chilled cast iron	-	55HRC						

* This table shows general cutting conditons, it must be adjusted according to the rigidity of the machine, tooling, condition of the work-piece, material, coolant and so on.



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