



A-L SERIES INSERT PROFILE

The **A-L Series Insert** features a knurled body and large diameter—low profile head making it ideal for use in punched or drilled holes. It offers the highest all around strength characteristics and has been designed to be used with Grade 5 or Metric 8.8/9.8 mating screws. The A-L Series is AVK's most versatile performer.

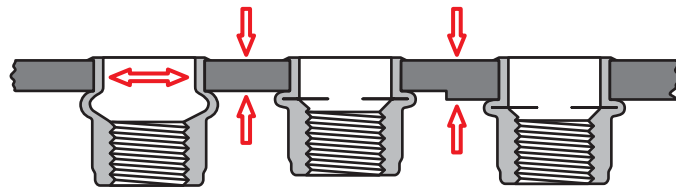
The A-L Series Insert can be installed using AVK's ARO brand pneumatic tools or AVK's SPPTM pneumatic/hydraulic tooling. These tools can be located at any position on your assembly line. The A-L Series can be installed either before or after finish.



As the A-L Series is installed, the knurled body expands 360° **FILLING THE HOLE**. This feature provides exceptional torque strength and vibration resistance.

SPINWALL TECHNOLOGYTM

HOW HOLE FILL WORKS FOR YOU



The installation tool then continues to install the insert forming a backside flange even in multiple or variable thickness materials **WITHOUT ADJUSTMENT**.

DESIGN BENEFITS

- **EXCEPTIONAL TORQUE STRENGTH** is achieved as the insert's knurled body expands **FILLING THE HOLE**.
- **QUALITY INSTALLATIONS** even in variable thickness materials are assured by AVK's spin/spin ARO pneumatic tools and our pneumatic hydraulic SPP2 ToolTM.
- **SUPERIOR THREAD STRENGTH** is provided due to our internal rolled thread manufacturing process.
- **THREADS GAUGE** before and after installation due to the increased cross-sectional thickness of the thread area. Thread dilation is prevented.
- **INVENTORY REDUCTION** is possible because of the A-L Series' wide grip range capacity. It is 2.5 times greater than conventional rivet nuts.
- **SUPERIOR CORROSION RESISTANCE** is provided by our standard zinc/yellow trivalent finish (120 hours. salt spray to white corrosion). For exceptional corrosion protection we offer a trivalent tin/zinc alloy finish.
- **AVAILABLE** in steel. Additional materials such as aluminum, brass and monel are available by special order. Contact an AVK Sales Representatives.

ADDITIONAL DESIGN TYPES

CLOSED END

Thread area is enclosed eliminating leakage past the threads from either side of the application. See page 11.



SEALED HEAD

A PVC foam seal is bonded to the underside of the head and when installed provides a weather tight seal. (Also available in the closed end version.) See page 18 for important grip information.



WEDGE HEAD

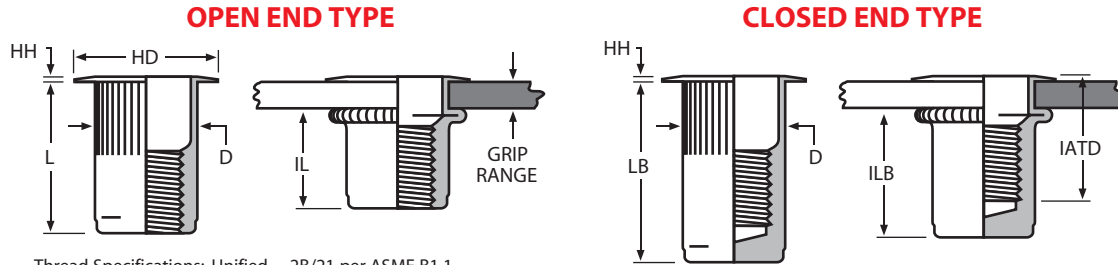
The addition of wedges under the head provides even greater torque capability, especially in soft or thin materials and is excellent for electrical grounding applications. Contact an AVK Sales Representative for details.



UNIFIED (INCH) AND METRIC THREAD SIZES



INSERT
KNURLED THREADED INSERTS



Thread Specifications: Unified 2B/21 per ASME B1.1
Metric 6H/21 per ASME B1.13M

THREAD SIZE	THREAD CALL OUT	GRIP RANGE	GRIP CALL OUT	HOLE SIZE +.006 / -.000	HD ±.010 ±.025*	HH ±.003	L ±.015	D MAX.	IL MAX.	LB MAX.	ILB MAX.	IATD** MAX.
6-32 UNC	632	.020 - .080	80	17/64 (.2656)	.390	.030	.420	.265	.305	.755	.640	.610
6-32 UNC	632	.080 - .130	130	17/64 (.2656)	.390	.030	.470	.265	.305	.755	.580	.670
8-32 UNC	832	.020 - .080	80	17/64 (.2656)	.390	.030	.420	.265	.305	.755	.640	.610
8-32 UNC	832	.080 - .130	130	17/64 (.2656)	.390	.030	.470	.265	.305	.755	.580	.670
10-24 UNC	1024	.020 - .130	130	19/64 (.2969)	.415	.030	.475	.296	.315	1.005	.845	.730
10-24 UNC	1024	.130 - .225	225	19/64 (.2969)	.415	.030	.585	.296	.315	1.005	.735	.840
10-32 UNF	1032	.020 - .130	130	19/64 (.2969)	.415	.030	.475	.296	.315	1.005	.845	.730
10-32 UNF	1032	.130 - .225	225	19/64 (.2969)	.415	.030	.585	.296	.315	1.005	.735	.840
1/4-20 UNC	420	.027 - .165	165	25/64 (.3906)	.500	.030	.580	.390	.380	1.205	1.005	.895
1/4-20 UNC	420	.165 - .260	260	25/64 (.3906)	.500	.030	.680	.390	.380	1.205	.905	1.035
5/16-18 UNC	518	.027 - .150	150	17/32 (.5312)	.685*	.035	.690	.530	.470	1.405	1.175	.995
5/16-18 UNC	518	.150 - .312	312	17/32 (.5312)	.685*	.035	.805	.530	.425	1.405	1.025	1.120
3/8-16 UNC	616	.027 - .150	150	17/32 (.5312)	.685*	.035	.690	.530	.470	1.405	1.175	.995
3/8-16 UNC	616	.150 - .312	312	17/32 (.5312)	.685*	.035	.805	.530	.425	1.405	1.025	1.120
1/2-13 UNC	813	.063 - .200	200	11/16 (.6875)	.865*	.047	1.150	.685	.850	2.380	2.070	1.505
1/2-13 UNC	813	.200 - .350	350	11/16 (.6875)	.865*	.047	1.300	.685	.850	2.380	1.920	1.505
1/2-13 UNC	813	.350 - .500	500	11/16 (.6875)	.865*	.047	1.450	.685	.860	2.380	1.770	1.505

THREAD SIZE	THREAD CALL OUT	GRIP RANGE	GRIP CALL OUT	HOLE SIZE +.015 / -.000	HD ±.025 ±.064*	HH ±.008	L ±.038	D MAX.	IL MAX.	LB MAX.	ILB MAX.	IATD** MAX.
M4 x 0,7 ISO	470	0,50 - 2,00	2.0	6,75	9,91	0,76	10,67	6,73	7,75	19,18	16,26	15,49
M4 x 0,7 ISO	470	2,00 - 3,30	3.3	6,75	9,91	0,76	11,94	6,73	7,75	19,18	14,73	17,02
M5 x 0,8 ISO	580	0,50 - 3,30	3.3	7,60	10,54	0,76	12,07	7,52	8,00	25,53	21,46	18,54
M5 x 0,8 ISO	580	3,30 - 5,70	5.7	7,60	10,54	0,76	14,86	7,52	8,00	25,53	18,67	21,34
M6 x 1,0 ISO	610	0,70 - 4,20	4.2	10,00	12,70	0,76	14,73	9,91	9,65	30,61	25,53	22,73
M6 x 1,0 ISO	610	4,20 - 6,60	6.6	10,00	12,70	0,76	17,27	9,91	9,65	30,61	22,99	26,29
M8 x 1,25 ISO	8125	0,70 - 3,80	3.8	13,50	17,40*	0,89	17,53	13,46	11,94	35,69	29,85	25,27
M8 x 1,25 ISO	8125	3,80 - 7,90	7.9	13,50	17,40*	0,89	20,45	13,46	10,80	35,69	26,04	28,45
M10 x 1,5 ISO	1015	0,70 - 3,80	3.8	13,50	17,40*	0,89	17,53	13,46	11,94	35,69	29,85	25,27
M10 x 1,5 ISO	1015	3,80 - 7,90	7.9	13,50	17,40*	0,89	20,45	13,46	10,80	35,69	26,04	28,45
M12 x 1,75 ISO	12175	1,60 - 5,10	5.1	17,45	21,97*	1,19	29,21	17,4	21,59	60,45	52,58	38,23
M12 x 1,75 ISO	12175	5,10 - 8,90	8.9	17,45	21,97*	1,19	33,02	17,4	21,59	60,45	48,77	38,23
M12 x 1,75 ISO	12175	8,90 - 12,7	12.7	17,45	21,97*	1,19	36,83	17,4	21,84	60,45	44,96	38,23

NOTE 1: Grip range can be affected by parent material density and actual hole size. AVK suggests trial installations to determine optimum grip.
NOTE 2: Additional UNF fine threads are available. Contact an AVK Sales Representative for details.
NOTE 3: Additional grip lengths are available. Contact an AVK Sales Representative for details. **Dimensions in minimum grip condition.

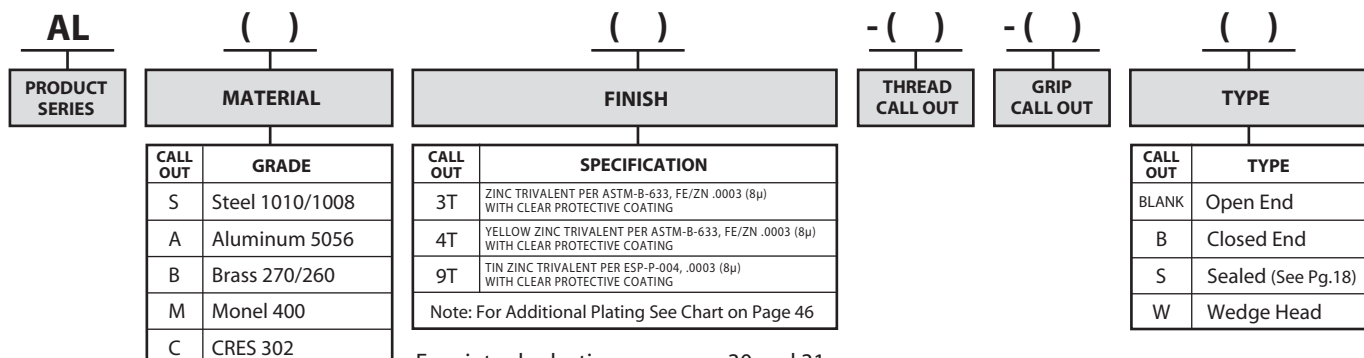
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PART NUMBERING SYSTEM

SAMPLE NUMBER: ALS3T-420-165



For air tool selection see pages 30 and 31



A-K SERIES INSERT PROFILE

The **A-K Series** Insert features a knurled body and a reduced profile head to allow for virtually flush installation. Countersink drilling or dimpling of the parent material can be eliminated. The A-K Series is designed to be used with Grade 5 or Metric Class 8.8/9.8 mating screws.

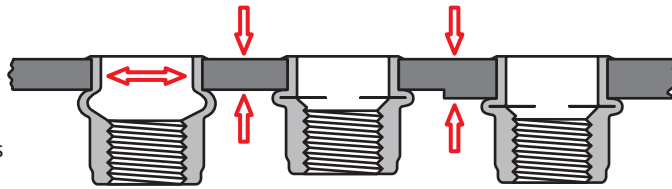
The A-K Series Insert can be installed using AVK's ARO brand pneumatic tools or AVK's SPP™ pneumatic/hydraulic tooling. These tools can be located at any position on your assembly line. The A-K Series Insert can be installed either before or after finish.



SPINWALL TECHNOLOGY™

HOW HOLE FILL WORKS FOR YOU

As the A-K Series is installed, the knurled body expands 360° **FILLING THE HOLE**. This feature provides exceptional torque strength and vibration resistance.



The installation tool then continues to install the insert forming a backside flange even in multiple or variable thickness materials **WITHOUT ADJUSTMENT**.

DESIGN BENEFITS

- **VIRTUALLY FLUSH INSTALLATIONS** are achieved without special hole preparation due to the A-K Series minimal head profile.
- **EXCEPTIONAL TORQUE STRENGTH** is achieved as the insert's knurled body expands **FILLING THE HOLE**.
- **QUALITY INSTALLATIONS** even in variable thickness materials are assured by AVK's spin/spin ARO pneumatic tools and our pneumatic/hydraulic SPP2 Tool™.
- **SUPERIOR THREAD STRENGTH** is provided due to our internal rolled thread manufacturing process.
- **THREADS GAUGE** before and after installation due to the increased cross-sectional thickness of the thread area. Thread dilation is prevented.
- **INVENTORY REDUCTION** is possible because of the A-K Series' wide grip range capacity. It is 2.5 times greater than conventional rivet nuts.
- **SUPERIOR CORROSION RESISTANCE** is provided by our standard zinc/yellow trivalent finish (120 hours. Salt spray to white corrosion). For exceptional corrosion protection we offer a trivalent tin/zinc alloy finish.
- **AVAILABLE** in steel. Additional materials such as aluminum, brass and monel are available by special order. Contact an AVK Sales Representative for details.

ADDITIONAL DESIGN TYPES

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CLOSED END

Thread area is enclosed eliminating leakage past the threads from either side of the application. See page 13.





A-T SERIES INSERT PROFILE

The **A-T Series Insert** is unique in that it can be installed into most any material above .030/.76 mm in thickness. As the A-T Series is installed, the threaded portion is completely swaged 360° into the sleeve portion and the hole. This permits the A-T Series to be used with Grade 8/Metric 12.9 mating screws.

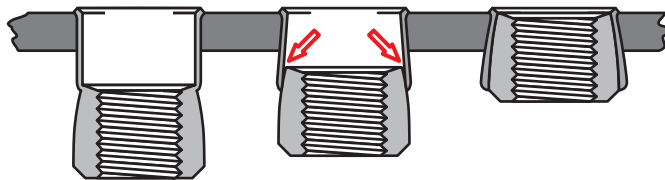
The A-T Series Insert is installed using lightweight, handheld pneumatic ARO tools that can be located at any position in your product's assembly sequence. The A-T Series Insert can be installed either prior to or after finish.



360° SWAGING

HOW IT WORKS FOR YOU

As the A-T Series Insert is installed, the threaded nut portion is drawn into the upper sleeve portion.



As this occurs a 360° swaging action takes place anchoring A-T Series Insert in the parent material.

DESIGN BENEFITS

- REDUCED OVERALL LENGTH of the installed A-T Series Insert allows it to be used in limited clearance applications.
- QUALITY INSTALLATIONS even in variable thickness materials are assured by our spin/spin torque stall tools (featured on page 30).
- INVENTORY REDUCTION is possible because one A-T Series Insert will work in any thickness.
- INSTALLS INTO MOST ANY MATERIAL with a thickness over .030/.76 mm.
- CAN BE USED WITH GRADE 8/METRIC CLASS 12.9 SCREWS due to the A-T Series high shear load capability.
- AVAILABLE in Steel, Aluminum, Brass and Series 304 Stainless Steel are available by special order. Contact an AVK Sales Representative for details.

ADDITIONAL DESIGN TYPES

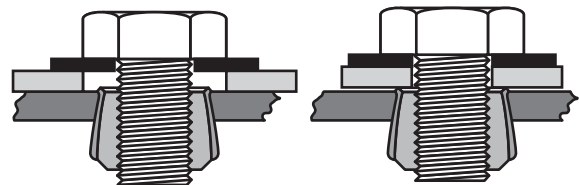
CLOSED END

Thread area is enclosed eliminating leakage past the threads from either side of the application. See page 23.



JOINT DESIGN PRACTICES

AVK recommends that the mating part comes in contact with the head of the A-T Series Insert. If a gap or clearance hole exists between the mating part and the A-T Series Insert, the threaded nut portion may rotate or pull through the parent material.



NOT RECOMMENDED

RECOMMENDED

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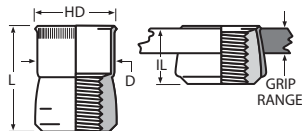
UNIFIED (INCH) AND METRIC THREAD SIZES



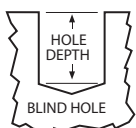
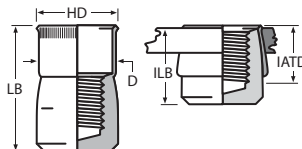
INSERT

KNURLED THREADED INSERTS

OPEN END TYPE



CLOSED END TYPE



THREAD SIZE	THREAD CALL OUT	HD ±.005	L ±.015	D MAX.	IL MAX.	LB ±.015	ILB MAX.	IATD** MAX.	HOLE DEPTH MIN.
4-40 UNC	440	.211	.370	.1875	.205	.660	.495	.395	.400
6-32 UNC	632	.240	.370	.2185	.205	.675	.505	.410	.400
8-32 UNC	832	.269	.370	.2495	.205	.675	.505	.410	.400
10-24 UNC	1024	.306	.370	.2805	.205	.685	.520	.385	.400
10-32 UNF	1032	.306	.370	.2805	.205	.685	.520	.385	.400
1/4-20 UNC	420	.400	.515	.3745	.275	1.005	.760	.615	.540
5/16-18 UNC	518	.528	.615	.4995	.325	1.065	.770	.630	.640
3/8-16 UNC	616	.588	.745	.5615	.390	1.450	1.095	.890	.770
1/2-13 UNC	813	.800	.935	.7485	.485	NA	NA	NA	.960

THREAD SIZE	THREAD CALL OUT	HD ±0,13	L ±0,38	D MAX.	IL MAX.	LB ±0,38	ILB MAX.	IATD** MAX.	HOLE DEPTH MIN.
M3 x 0,5 ISO	350	5,36	9,40	4,76	5,21	16,77	12,57	10,03	10,16
M4 x 0,7 ISO	470	6,83	9,40	6,34	5,21	17,15	12,83	10,41	10,16
M5 x 0,8 ISO	580	7,77	9,40	7,12	5,21	17,40	13,21	9,78	10,16
M6 x 1,0 ISO	610	10,16	13,08	9,51	6,99	25,53	19,30	15,62	13,72
M8 x 1,25 ISO	8125	13,41	15,62	12,69	8,26	27,05	19,56	16,00	16,26
M10 x 1,5 ISO	1015	14,94	18,92	14,26	9,91	36,83	27,81	22,61	19,56
M12 x 1,75 ISO	12175	20,32	23,75	19,01	12,32	NA	NA	NA	24,38

HOLE SIZE / MATERIAL THICKNESS CHART

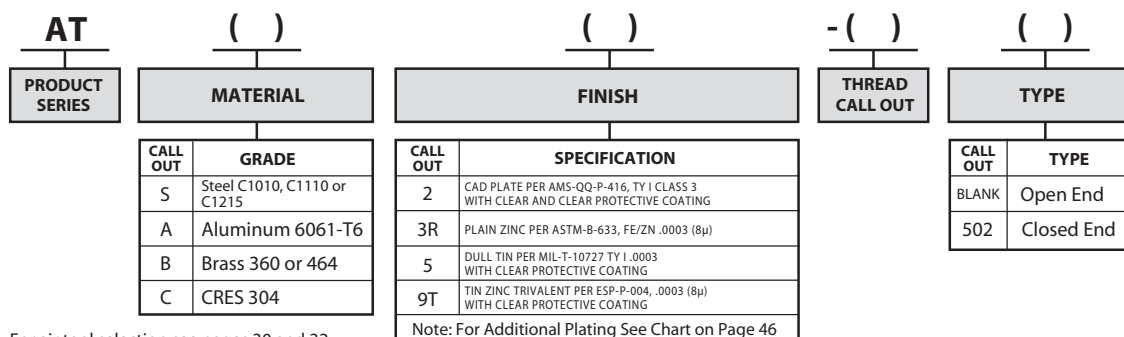
THREAD SIZE	.030 - .090 MAT. THICKNESS		.091 - .124 MAT. THICKNESS		.125 - .186 MAT. THICKNESS		.187 - OVER MAT. THICKNESS	
	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL
4-40 UNC	3/16	.1875	#10	.1935	#10	.1935	#9	.1960
6-32 UNC	7/32	.2188	#2	.2210	#1	.2280	#1	.2280
8-32 UNC	1/4	.2500	"F"	.2570	17/64	.2656	17/64	.2656
10-24 UNC	9/32	.2812	"L"	.2900	"L"	.2900	19/64	.2969
10-32 UNF	9/32	.2812	"L"	.2900	"L"	.2900	19/64	.2969
1/4-20 UNC	3/8	.3750	3/8	.3750	"W"	.3860	25/64	.3906
5/16-18 UNC	1/2	.5000	1/2	.5000	33/64	.5156	33/64	.5156
3/8-16 UNC	9/16	.5625	9/16	.5625	37/64	.5781	37/64	.5781
1/2-13 UNC	3/4	.7500	49/64	.7656	25/32	.7810	51/64	.7970

THREAD SIZE	0,76 - 2,29 MAT. THICKNESS		2,31 - 3,15 MAT. THICKNESS		3,17 - 4,72 MAT. THICKNESS		4,72 - OVER MAT. THICKNESS	
	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL	DRILL SIZE	DECIMAL
M3 x 0,5 ISO	4,75	.1875	4,90	.1935	4,90	.1935	4,97	.1960
M4 x 0,7 ISO	6,35	.2500	6,52	.2570	6,74	.2656	6,74	.2656
M5 x 0,8 ISO	7,14	.2812	7,36	.2900	7,36	.2900	7,54	.2969
M6 x 1,0 ISO	9,52	.3750	9,52	.3750	9,80	.3860	9,92	.3906
M8 x 1,25 ISO	12,70	.5000	12,70	.5000	13,09	.5156	13,09	.5156
M10 x 1,5 ISO	14,28	.5625	14,28	.5625	14,68	.5781	14,68	.5781
M12 x 1,75 ISO	19,05	.7500	19,44	.7656	19,83	.7810	20,24	.7970

FINISH: The standard specified finish for the A-T Series Insert is tin. Alteration to this finish will reduce performance.*THREAD CLASS: The A-T Series Insert's internal threads are manufactured oversized to compensate for resulting thread portion shrinkage during the installation swaging process. They are not gaugeable prior to or after installation but will be compatible with Class 2A/3A or 6g screws after installation.

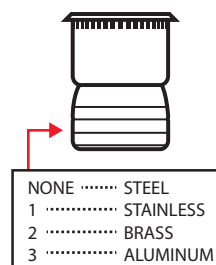
PART NUMBERING SYSTEM

SAMPLE NUMBER: AT5-610



MATERIAL TYPE IDENTIFICATION GROOVES

All materials for the A-T Series when plated look similar. Radial grooves are machined into the part for material identification.

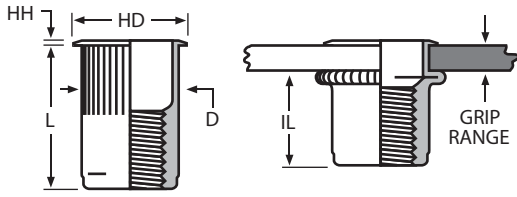


UNIFIED (INCH) AND METRIC THREAD SIZES

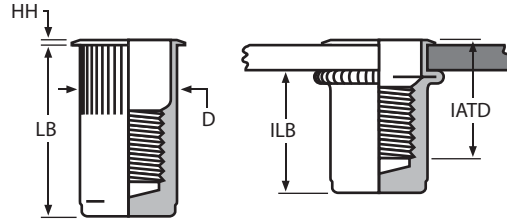


INSERT
KNURLED THREADED INSERTS

OPEN END TYPE



CLOSED END TYPE



Thread Specifications: Unified 2B/21 per ASME B1.1
Metric 6H/21 per ASME B1.13M

THREAD SIZE	THREAD CALL OUT	GRIP RANGE	GRIP CALL OUT	HOLE SIZE +.006 / -.000	HD ±.015	HH ±.003	L ±.015	D MAX.	IL MAX.	LB MAX.	ILB MAX.	IATD* MAX.
6-32 UNC	632	.020 - .080	80	17/64 (.2656)	.310	.019	.420	.265	.305	.755	.640	.610
6-32 UNC	632	.080 - .130	130	17/64 (.2656)	.310	.019	.470	.265	.305	.755	.580	.670
8-32 UNC	832	.020 - .080	80	17/64 (.2656)	.310	.019	.420	.265	.305	.755	.640	.610
8-32 UNC	832	.080 - .130	130	17/64 (.2656)	.310	.019	.470	.265	.305	.755	.580	.670
10-24 UNC	1024	.020 - .130	130	19/64 (.2969)	.340	.019	.475	.296	.315	1.005	.845	.730
10-24 UNC	1024	.130 - .225	225	19/64 (.2969)	.340	.019	.585	.296	.315	1.005	.735	.840
10-32 UNF	1032	.020 - .130	130	19/64 (.2969)	.340	.019	.475	.296	.315	1.005	.845	.730
10-32 UNF	1032	.130 - .225	225	19/64 (.2969)	.340	.019	.585	.296	.315	1.005	.735	.840
1/4-20 UNC	420	.027 - .165	165	25/64 (.3906)	.455	.023	.580	.390	.380	1.205	1.005	.895
1/4-20 UNC	420	.165 - .260	260	25/64 (.3906)	.455	.023	.680	.390	.380	1.205	.905	1.035
5/16-18 UNC	518	.027 - .150	150	17/32 (.5312)	.595	.023	.690	.530	.470	1.405	1.175	.995
5/16-18 UNC	518	.150 - .312	312	17/32 (.5312)	.595	.023	.805	.530	.425	1.405	1.025	1.120
3/8-16 UNC	616	.027 - .150	150	17/32 (.5312)	.595	.023	.690	.530	.470	1.405	1.175	.995
3/8-16 UNC	616	.150 - .312	312	17/32 (.5312)	.595	.023	.805	.530	.425	1.405	1.025	1.120

THREAD SIZE	THREAD CALL OUT	GRIP RANGE	GRIP CALL OUT	HOLE SIZE +.015 / -.000	HD ±.038	HH ±.008	L ±.038	D MAX.	IL MAX.	LB MAX.	ILB MAX.	IATD* MAX.
M4 x 0,7 ISO	470	0,50 - 2,00	2,0	6,75	7,87	0,48	10,67	6,73	7,75	19,18	16,26	15,49
M4 x 0,7 ISO	470	2,00 - 3,30	3,3	6,75	7,87	0,48	11,94	6,73	7,75	19,18	14,73	17,02
M5 x 0,8 ISO	580	0,50 - 3,30	3,3	7,60	8,64	0,48	12,07	7,52	8,00	25,53	21,46	18,54
M5 x 0,8 ISO	580	3,30 - 5,70	5,7	7,60	8,64	0,48	14,86	7,52	8,00	25,53	18,67	21,34
M6 x 1,0 ISO	610	0,70 - 4,20	4,2	10,00	11,56	0,58	14,73	9,91	9,65	30,61	25,53	22,73
M6 x 1,0 ISO	610	4,20 - 6,60	6,6	10,00	11,56	0,58	17,27	9,91	9,65	30,61	22,99	26,29
M8 x 1,25 ISO	8125	0,70 - 3,80	3,8	13,50	15,11	0,58	17,53	13,46	11,94	35,69	29,85	25,27
M8 x 1,25 ISO	8125	3,80 - 7,90	7,9	13,50	15,11	0,58	20,45	13,46	10,80	35,69	26,04	28,45
M10 x 1,5 ISO	1015	0,70 - 3,80	3,8	13,50	15,11	0,58	17,53	13,46	11,94	35,69	29,85	25,27
M10 x 1,5 ISO	1015	3,80 - 7,90	7,9	13,50	15,11	0,58	20,45	13,46	10,80	35,69	26,04	28,45

NOTE 1: Grip range can be affected by parent material density and actual hole size. AVK suggests trial installations to determine optimum grip.

NOTE 2: Additional UNF fine threads are available. Contact an AVK Sales Representative for details.

NOTE 3: Additional grip lengths are available. Contact an AVK Sales Representative for details. *Dimensions in minimum grip condition.

NOTE 4: Contact an AVK Sales Representative regarding optional materials.

PART NUMBERING SYSTEM

SAMPLE NUMBER: AKS3T-420-165

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PRODUCT SERIES	MATERIAL	FINISH	THREAD CALL OUT	GRIP CALL OUT	TYPE																								
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For air tool selection see pages 30 and 31