



Atlas Engineering

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Bulletin **AEL/K**

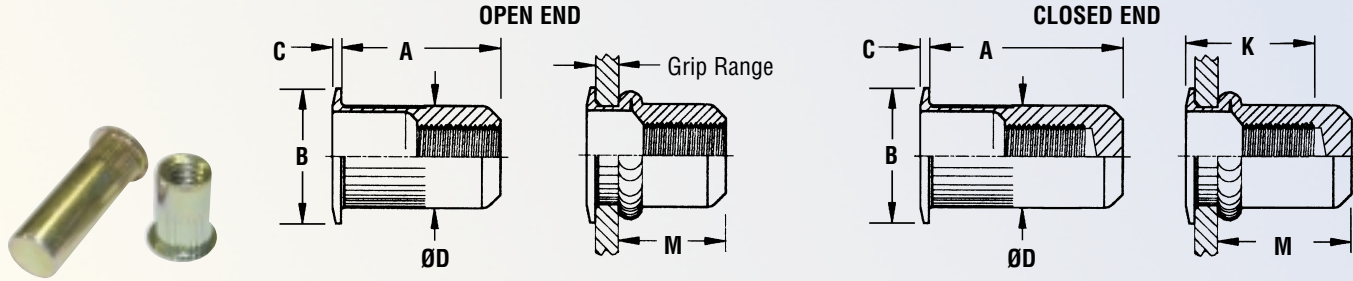
**SpinTite™ Rib-wall  
Low-profile and  
Minimized-profile Head**



**AEL**  
**AEK**

# TYPE AEL LOW-PROFILE HEAD

- Feature a large diameter, low-profile head and knurled shank.
- Offers highest all around strength.



All dimensions are in inches.

Thread Size (1)	Part Number (2)	Grip Range (1)	Open					Closed					Hole Size In Sheet +.006 -.000	
			A ±.015	B ±.015	C Nom.	ØD Max.	M Ref.	A ±.015	B ±.015	C Nom.	ØD Max.	K Min.		M Max.
#6-32	AELS-632-80	.020 - .080	.420	.390	.030	.265	.305	.740	.390	.030	.265	.43	.640	.266
#6-32	AELS-632-130	.080 - .130	.470	.390	.030	.265	.305	.740	.390	.030	.265	.43	.580	.266
#8-32	AELS-832-80	.020 - .080	.420	.390	.030	.265	.305	.740	.390	.030	.265	.43	.640	.266
#8-32	AELS-832-130	.080 - .130	.470	.390	.030	.265	.305	.740	.390	.030	.265	.43	.580	.266
#10-32	AELS-1032-130	.020 - .130	.475	.415	.030	.296	.315	.990	.415	.030	.296	.58	.845	.297
#10-32	AELS-1032-225	.130 - .225	.585	.415	.030	.296	.315	.990	.415	.030	.296	.58	.735	.297
1/4-20	AELS-420-165	.027 - .165	.580	.500	.030	.390	.380	1.190	.500	.030	.390	.70	1.005	.391
1/4-20	AELS-420-260	.165 - .260	.680	.500	.030	.390	.380	1.190	.500	.030	.390	.70	.905	.391
5/16-18	AELS-518-150	.027 - .150	.690	.685	.035	.530	.470	1.390	.685	.035	.530	.82	1.175	.531
5/16-18	AELS-518-312	.150 - .312	.805	.685	.035	.530	.425	1.390	.685	.035	.530	.82	1.025	.531
3/8-16	AELS-616-150	.027 - .150	.690	.685	.035	.530	.470	1.390	.685	.035	.530	.83	1.175	.531
3/8-16	AELS-616-312	.150 - .312	.805	.685	.035	.530	.425	1.390	.685	.035	.530	.83	1.025	.531
1/2-13	AELS-813-200	.063 - .200	1.150	.865	.047	.685	.850	—	—	—	—	—	—	.688
1/2-13	AELS-813-350	.200 - .350	1.300	.865	.047	.685	.850	—	—	—	—	—	—	.688
1/2-13	AELS-813-500	.350 - .500	1.450	.865	.047	.685	.850	—	—	—	—	—	—	.688

All dimensions are in millimeters.

Thread Size x Pitch (1)	Part Number (2)	Grip Range (1)	Open					Closed					Hole Size In Sheet +0.15	
			A ±0.38	B ±0.38	C Nom.	ØD Max.	M Ref.	A ±0.38	B ±0.38	C Nom.	ØD Max.	K Min.		M Max.
M4 x 0.7	AELS-470-2.0	0.5 - 2	10.67	9.91	0.76	6.73	7.75	18.8	9.91	0.76	6.73	11.6	16.26	6.75
M4 x 0.7	AELS-470-3.3	2 - 3.3	11.94	9.91	0.76	6.73	7.75	18.8	9.91	0.76	6.73	11.6	14.73	6.75
M5 x 0.8	AELS-580-3.3	0.5 - 3.3	12.07	10.54	0.76	7.52	8	25.15	10.54	0.76	7.52	15.6	21.46	7.6
M5 x 0.8	AELS-580-5.7	3.3 - 5.7	14.86	10.54	0.76	7.52	8	25.15	10.54	0.76	7.52	15.6	18.67	7.6
M6 x 1	AELS-610-4.2	0.7 - 4.2	14.73	12.7	0.76	9.91	9.65	30.23	12.7	0.76	9.91	17.5	25.53	10
M6 x 1	AELS-610-6.6	4.2 - 6.6	17.27	12.7	0.76	9.91	9.65	30.23	12.7	0.76	9.91	17.5	22.99	10
M8 x 1.25	AELS-8125-3.8	0.7 - 3.8	17.53	17.4	0.89	13.46	11.94	35.31	17.4	0.89	13.46	20.2	29.85	13.5
M8 x 1.25	AELS-8125-7.9	3.8 - 7.9	20.45	17.4	0.89	13.46	10.8	35.31	17.4	0.89	13.46	20.2	26.04	13.5
M10 x 1.5	AELS-1015-3.8	0.7 - 3.8	17.53	17.4	0.89	13.46	11.94	35.31	17.4	0.89	13.46	20.8	29.85	13.5
M10 x 1.5	AELS-1015-7.9	3.8 - 7.9	20.45	17.4	0.89	13.46	10.8	35.31	17.4	0.89	13.46	20.8	26.04	13.5

(1) Additional thread sizes and grip ranges available.

(2) For closed end, add a "B" to the end of the part number.

Also available . . .

### Wedge Head

Wedges under the head provide greater torque, especially in soft or thin materials.

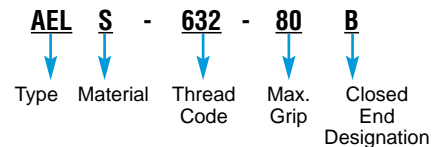


### Sealed Head

A PVC foam seal is bonded to the underside of the head to provide a weathertight seal.



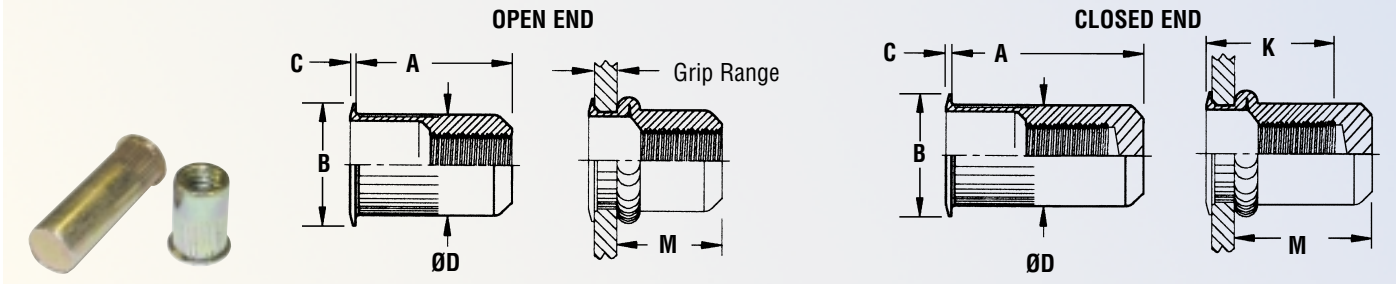
## Part Number Designation



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## TYPE AEK MINIMIZED-PROFILE HEAD

- Same as the AEL but with a minimized-profile head.
- Allows near-flush installations with no need for special hole preparations such as countersinking or dimpling.



All dimensions are in inches.

Thread Size (1)	Part Number (2)	Grip Range (1)	Open					Closed					Hole Size In Sheet +.006 -.000	
			A ±.015	B ±.015	C Nom.	ØD Max.	M Ref.	A ±.015	B ±.015	C Nom.	ØD Max.	K Min.		M Max.
#6-32	AEKS-632-80	.020 - .080	.420	.310	.019	.265	.305	.740	.310	.019	.265	.43	.640	.266
#6-32	AEKS-632-130	.080 - .130	.470	.310	.019	.265	.305	.740	.310	.019	.265	.43	.580	.266
#8-32	AEKS-832-80	.020 - .080	.420	.310	.019	.265	.305	.740	.310	.019	.265	.43	.640	.266
#8-32	AEKS-832-130	.080 - .130	.470	.310	.019	.265	.305	.740	.310	.019	.265	.43	.580	.266
#10-32	AEKS-1032-130	.020 - .130	.475	.340	.019	.296	.315	.990	.340	.019	.296	.58	.845	.297
#10-32	AEKS-1032-225	.130 - .225	.585	.340	.019	.296	.315	.990	.340	.019	.296	.58	.735	.297
1/4-20	AEKS-420-165	.027 - .165	.580	.455	.022	.390	.380	1.190	.455	.022	.390	.70	1.005	.391
1/4-20	AEKS-420-260	.165 - .260	.680	.455	.022	.390	.380	1.190	.455	.022	.390	.70	.905	.391
5/16-18	AEKS-518-150	.027 - .150	.690	.595	.022	.530	.470	1.390	.595	.022	.530	.82	1.175	.531
5/16-18	AEKS-518-312	.150 - .312	.805	.595	.022	.530	.425	1.390	.595	.022	.530	.82	1.025	.531
3/8-16	AEKS-616-150	.027 - .150	.690	.595	.022	.530	.470	1.390	.595	.022	.530	.83	1.175	.531
3/8-16	AEKS-616-312	.150 - .312	.805	.595	.022	.530	.425	1.390	.595	.022	.530	.83	1.025	.531

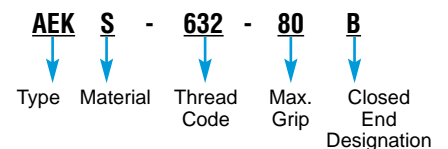
All dimensions are in millimeters.

Thread Size x Pitch (1)	Part Number (2)	Grip Range (1)	Open					Closed					Hole Size In Sheet +0.15	
			A ±0.38	B ±0.38	C Nom.	ØD Max.	M Ref.	A ±0.38	B ±0.38	C Nom.	ØD Max.	K Min.		M Max.
M4 x 0.7	AEKS-470-2.0	0.5 - 2	10.67	7.87	0.48	6.73	7.75	18.8	7.78	0.48	6.73	11.6	16.26	6.75
M4 x 0.7	AEKS-470-3.3	2 - 3.3	11.94	7.87	0.48	6.73	7.75	18.8	7.87	0.48	6.73	11.6	14.73	6.75
M5 x 0.8	AEKS-580-3.3	0.5 - 3.3	12.07	8.64	0.48	7.52	8	25.15	8.64	0.48	7.52	15.6	21.46	7.6
M5 x 0.8	AEKS-580-5.7	3.3 - 5.7	14.86	8.64	0.48	7.52	8	25.15	8.64	0.48	7.52	15.6	18.67	7.6
M6 x 1	AEKS-610-4.2	0.7 - 4.2	14.73	11.56	0.55	9.91	9.65	30.23	11.56	0.55	9.91	17.5	25.53	10
M6 x 1	AEKS-610-6.6	4.2 - 6.6	17.27	11.56	0.55	9.91	9.65	30.23	11.56	0.55	9.91	17.5	22.99	10
M8 x 1.25	AEKS-8125-3.8	0.7 - 3.8	17.53	15.11	0.55	13.46	11.94	35.31	15.11	0.55	13.46	20.2	29.85	13.5
M8 x 1.25	AEKS-8125-7.9	3.8 - 7.9	20.45	15.11	0.55	13.46	10.8	35.31	15.11	0.55	13.46	20.2	26.04	13.5
M10 x 1.5	AEKS-1015-3.8	0.7 - 3.8	17.53	15.11	0.55	13.46	11.94	35.31	15.11	0.55	13.46	20.8	29.85	13.5
M10 x 1.5	AEKS-1015-7.9	3.8 - 7.9	20.45	15.11	0.55	13.46	10.8	35.31	15.11	0.55	13.46	20.8	26.04	13.5

(1) Additional thread sizes and grip ranges available.

(2) For closed end, add a "B" to the end of the part number.

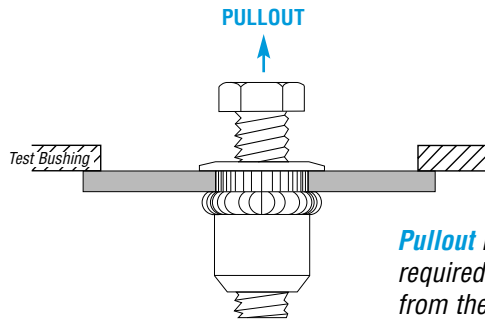
### Part Number Designation



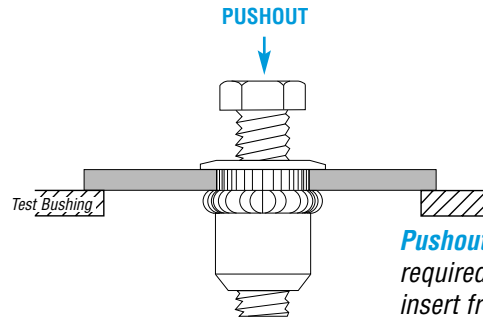
## MATERIAL & FINISH SPECIFICATIONS

Type	Material	Standard Finish
AEL / AEK	Steel, C-1008 or C-1010, or Equivalent	Zinc Plate per ASTM B 633, Fe/Zn 8, Type II

# PERFORMANCE DATA <sup>(5)</sup>



*Pullout is the force required to pull the insert from the sheet. (1)*



*Pushout is the force required to push the insert from the sheet. (3)*

Thread Size	Max. Grip	Test Sheet	Near Minimum Grip				Near Maximum Grip				
			Thickness (in.)	Sheet Hardness	Pullout (lbs.) (1)	Spinout (in. lbs.) (2)	Thickness (in.)	Sheet Hardness	Pullout (lbs.) (1)	Pushout (lbs.) (3) (4)	
										AEL	AEK
6-32 & 8-32	.080	Aluminum	.032	HRB 48	339	—	.060	HRB 67	897	—	—
		Cold-rolled Steel	.030	HRB 37	339	19	.071	HRB 43	969	689	390
	.130	Aluminum	.090	HRB 66	1515	—	.123	HRB 63	1684	—	—
		Cold-rolled Steel	.087	HRB 75	1514	18	.115	HRB 52	1869	689	390
10-32 & 10-24	.130	Aluminum	.030	HRB 28	342	—	.125	HRB 57	2284	—	—
		Cold-rolled Steel	.029	HRB 47	469	24	.128	HRB 49	2429	940	408
	.225	Aluminum	.136	HRB 20	2464	—	.185	HRB 57	2220	—	—
		Cold-rolled Steel	.165	HRB 56	2530	24	.187	HRB 77	2442	940	408
1/4-20 & 1/4-28	.165	Aluminum	.032	HRB 48	561	—	.125	HRB 57	2441	—	—
		Cold-rolled Steel	.030	HRB 43	581	80	.165	HRB 56	3448	744	615
	.260	Aluminum	.185	HRB 58	2798	—	.250	HRB 60	3796	—	—
		Cold-rolled Steel	.165	HRB 56	3028	64	.247	HRB 96	3370	744	615
5/16-18, 5/16-24, & 3/8-16	.150	Aluminum	.032	HRB 48	668	—	.125	HRB 57	3602	—	—
		Cold-rolled Steel	.030	HRB 43	687	100	.115	HRB 52	3478	1505	901
	.312	Aluminum	.185	HRB 60	5152	—	.312	HRB 52	6451	—	—
		Cold-rolled Steel	.165	HRB 60	4934	59	.312	HRB 90	5975	1505	901

Thread Size	Max. Grip	Test Sheet	Near Minimum Grip				Near Maximum Grip				
			Thickness (mm)	Sheet Hardness	Pullout (kN) (1)	Spinout (N•m) (2)	Thickness (N•m)	Sheet Hardness	Pullout (kN) (1)	Pushout (kN) (3) (4)	
										AEL	AEK
M4	2.0	Aluminum	0.8	HRB 48	1.5	—	1.5	HRB 67	4	—	—
		Cold-rolled Steel	0.8	HRB 37	1.5	2.1	1.8	HRB 43	4.3	3.1	1.7
	3.3	Aluminum	2.3	HRB 66	6.7	—	3.1	HRB 63	7.5	—	—
		Cold-rolled Steel	2.2	HRB 75	6.7	2	2.9	HRB 52	8.3	3.1	1.7
M5	3.3	Aluminum	0.8	HRB 28	1.5	—	3.1	HRB 57	10.2	—	—
		Cold-rolled Steel	0.7	HRB 47	2.1	2.7	3.3	HRB 49	10.8	4.2	1.8
	5.7	Aluminum	3.5	HRB 20	11	—	4.7	HRB 57	9.9	—	—
		Cold-rolled Steel	4.2	HRB 56	11.3	4.1	4.7	HRB 77	10.9	4.2	1.8
M6	4.2	Aluminum	0.8	HRB 48	2.5	—	3.2	HRB 57	10.9	—	—
		Cold-rolled Steel	0.8	HRB 43	2.6	9	4.2	HRB 56	15.3	3.3	2.7
	6.6	Aluminum	4.7	HRB 58	12.4	—	6.4	HRB 60	16.9	—	—
		Cold-rolled Steel	4.2	HRB 56	13.5	7.2	6.3	HRB 96	15	3.3	2.7
M8 & M10	3.8	Aluminum	0.8	HRB 48	3	—	3.2	HRB 57	16	—	—
		Cold-rolled Steel	0.8	HRB 43	3.1	11.3	2.9	HRB 52	15.5	6.7	4
	7.9	Aluminum	4.7	HRB 60	22.9	—	7.9	HRB 52	28.7	—	—
		Cold-rolled Steel	4.2	HRB 60	21.9	6.7	7.9	HRB 90	26.6	6.7	4

(1) For pullout, test sheet is supported with a bushing diameter of three times the ØD Max.

(2) Spinout testing conducted by inserting a screw into shank end of insert and tightening until insert spins in sheet.

(3) For pushout, test sheet is supported with a bushing diameter of three times the ØD Max.

(4) Pushout testing conducted only for near max grip steel sheet. For this condition type AEK has lower pushout than type AEL due to thinner head height.

Pullout and spinout performance is the same for type AEL and AEK.

(5) All performance values shown are the average of three or more lots.

Specifications subject to change without notice.

**Atlas Engineering**

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