



Inspection Report

by Alar Systems - Dimensional inspection results

INSPECTOR

PART

SAMPLES

Demo Inspector

DEMO-001 Inspection Fixture
Plate

5

DATE

INSTRUMENT

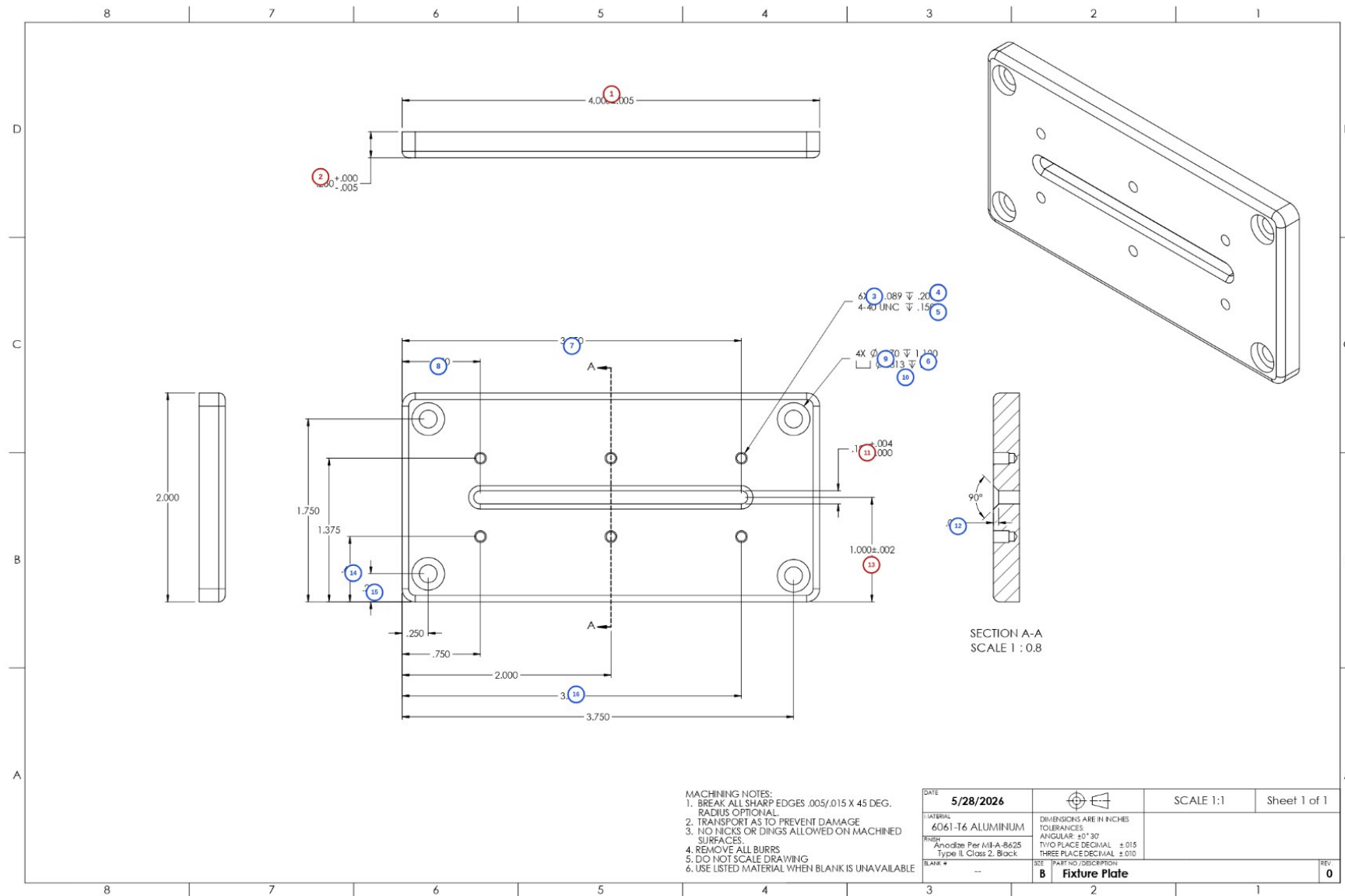
DIMENSIONS

05/28/2026

Digital caliper, micrometer,
thread plug gage

16

Drawing



Sample Summary

Notes: Commercial-safe demo inspection for the DEMO-001 fixture plate. Includes intentional out-of-tolerance examples for report review.
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Sample	Result	Failed Dimensions
Sample 1	PASS	—
Sample 2	PASS	—
Sample 3	FAIL	11
Sample 4	FAIL	13
Sample 5	FAIL	1, 2

Dimension Summary

#	Dim ID	Type	Crit	Nominal	Upper	Lower	Avg	Deviation	Min	Max	Range/Tol	Failed Samples	Pass/Fail	Est. Cpk	Notes
1	1	—	Yes	4.0000	4.0050	3.9950	4.0025	+0.0025	3.9997	4.0062	65.0%	P5	FAIL	0.30	Overall plate width, 4.000 +/- .005
2	2	—	Yes	0.2500	0.2500	0.2450	0.2475	-0.0025	0.2446	0.2497	102.0%	P5	FAIL	0.41	Counterbore / recess callout, .250 +.000 / -.005
3	3	Ø		0.0890	0.0990	0.0790	0.0892	+0.0002	0.0887	0.0900	6.5%	—	PASS	6.43	6X .089 pilot diameter for 4-40 UNC thread callout
4	4	DEPTH		0.2000	0.2100	0.1900	0.1999	-0.0001	0.1988	0.2009	10.5%	—	PASS	4.16	Thread/counterbore feature depth, inherited .XXX tolerance
5	5	DEPTH		0.1500	0.1600	0.1400	0.1504	+0.0004	0.1494	0.1512	9.0%	—	PASS	4.41	Thread/counterbore feature depth, inherited .XXX tolerance
6	6	—		0.0870	0.0970	0.0770	0.0871	+0.0001	0.0862	0.0878	8.0%	—	PASS	5.53	Pocket/slot feature width, inherited .XXX tolerance
7	7	—		3.2500	3.2600	3.2400	3.2499	-0.0001	3.2487	3.2511	12.0%	—	PASS	3.43	Horizontal hole-pattern location, inherited .XXX tolerance
8	8	—		0.7500	0.7600	0.7400	0.7500	+0.0000	0.7491	0.7508	8.5%	—	PASS	4.63	Vertical hole-pattern location, inherited .XXX tolerance
9	9	Ø		0.1700	0.1800	0.1600	0.1702	+0.0002	0.1692	0.1711	9.5%	—	PASS	4.49	Section/detail feature width, inherited .XXX tolerance
10	10	CBORE		0.3130	0.3230	0.3030	0.3130	+0.0000	0.3124	0.3138	7.0%	—	PASS	6.24	Section/detail feature width, inherited .XXX tolerance
11	11	—	Yes	0.1250	0.1290	0.1250	0.1260	+0.0010	0.1248	0.1270	55.0%	P3	FAIL	0.40	Controlled thickness / boss callout, .125 +.004 / -.000
12	12	—		0.0500	0.0600	0.0400	0.0501	+0.0001	0.0492	0.0508	8.0%	—	PASS	5.22	Feature offset, inherited .XXX tolerance
13	13	—	Yes	1.0000	1.0020	0.9980	0.9998	-0.0002	0.9977	1.0012	87.5%	P4	FAIL	0.46	Critical location, 1.000 +/- .002
14	14	—		0.6250	0.6350	0.6150	0.6250	+0.0000	0.6242	0.6258	8.0%	—	PASS	5.36	Section A-A feature location, inherited .XXX tolerance
15	15	—		0.2690	0.2790	0.2590	0.2690	+0.0000	0.2684	0.2697	6.5%	—	PASS	6.69	Section A-A feature location, inherited .XXX tolerance

#	Dim ID	Type	Crit	Nominal	Upper	Lower	Avg	Deviation	Min	Max	Range/Tol	Failed Samples	Pass/Fail	Est. Cpk	Notes
16	16	—		2.0000	2.0100	1.9900	1.9999	-0.0001	1.9989	2.0010	10.5%	—	PASS	3.77	Overall / hole-pattern center distance, inherited .XXX tolerance

Measurements

	1	2	3 (Ø)	4 (DEPTH)	5 (DEPTH)	6	7	8	9 (Ø)	10 (CBORE)	11	12	13	14	15	16
Sample 1	4.0012	0.2497	0.0891	0.1996	0.1512	0.0874	3.2492	0.7508	0.1698	0.3127	0.1256	0.0492	1.0004	0.6247	0.2688	2.0005
Sample 2	4.0004	0.2489	0.0887	0.2003	0.1505	0.0869	3.2504	0.7495	0.1706	0.3132	0.1262	0.0505	0.9996	0.6254	0.2693	1.9992
Sample 3	3.9997	0.2478	0.0894	0.1988	0.1494	0.0878	3.2511	0.7501	0.1711	0.3124	0.1248	0.0501	1.0001	0.6251	0.2684	2.0010
Sample 4	4.0048	0.2465	0.0900	0.2009	0.1501	0.0862	3.2487	0.7491	0.1692	0.3138	0.1270	0.0497	0.9977	0.6242	0.2697	1.9989
Sample 5	4.0062	0.2446	0.0889	0.1997	0.1510	0.0871	3.2502	0.7506	0.1701	0.3129	0.1265	0.0508	1.0012	0.6258	0.2689	2.0001
Notes	Overall plate width, 4.000 +/- .005	Counterbore / recess callout, .250 +.000 / -.005	6X .089 pilot diameter for 4-40 UNC thread callout	Thread/counterbore feature depth, inherited .XXX tolerance	Thread/counterbore feature depth, inherited .XXX tolerance	Pocket/slot feature width, inherited .XXX tolerance	Horizontal hole-pattern location, inherited .XXX tolerance	Vertical hole-pattern location, inherited .XXX tolerance	Section/detail feature width, inherited .XXX tolerance	Section/detail feature width, inherited .XXX tolerance	Controlled thickness / boss callout, .125 +.004 / -.000	Feature offset, inherited .XXX tolerance	Critical location, 1.000 +/- .002	Section A-A feature location, inherited .XXX tolerance	Section A-A feature location, inherited .XXX tolerance	Overall / hole-pattern center distance, inherited .XXX tolerance
Average	4.0025	0.2475	0.0892	0.1999	0.1504	0.0871	3.2499	0.7500	0.1702	0.3130	0.1260	0.0501	0.9998	0.6250	0.2690	1.9999
Deviation	+0.0025	-0.0025	+0.0002	-0.0001	+0.0004	+0.0001	-0.0001	+0.0000	+0.0002	+0.0000	+0.0010	+0.0001	-0.0002	+0.0000	+0.0000	-0.0001
Pass/Fail	FAIL	FAIL	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	FAIL	PASS	FAIL	PASS	PASS	PASS
Failed Samples	P5	P5	—	—	—	—	—	—	—	—	P3	—	P4	—	—	—
Range / Tol	65.0%	102.0%	6.5%	10.5%	9.0%	8.0%	12.0%	8.5%	9.5%	7.0%	55.0%	8.0%	87.5%	8.0%	6.5%	10.5%
Est. Cpk	0.30	0.41	6.43	4.16	4.41	5.53	3.43	4.63	4.49	6.24	0.40	5.22	0.46	5.36	6.69	3.77