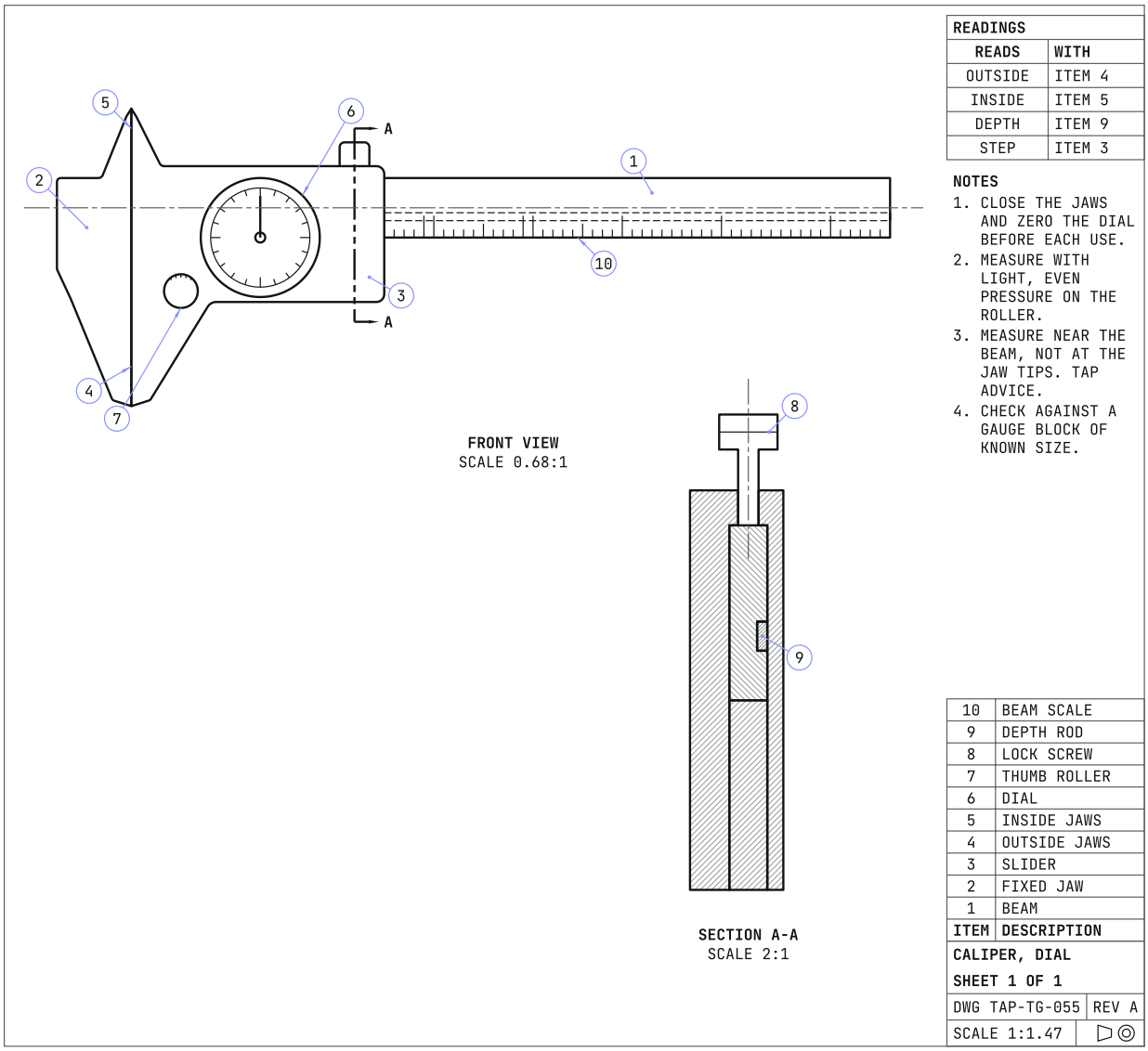
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Measuring Tools: Calipers, Micrometers and Dial Indicators

A dial or digital caliper reads .001 in (0.025 mm) and covers most sheet metal checks; an outside micrometer reads .001 in, or .0001 in with a vernier, for skin thickness and shank sizes.



Types

Type	Size or range, inches (mm)	Where it fits
Dial caliper	6, 8 or 12 (150, 200 or 300); reads .001 (0.025)	Outside, inside, depth and step readings on the bench and at the aircraft
Digital caliper	6, 8 or 12 (150, 200 or 300); shows .0005 (0.01)	The same readings with inch and mm at the press of a button
Vernier caliper	6 to 12 (150 to 300); reads .001 (0.02 on metric scales)	No battery, no gear train: the reference caliper of the shop
Outside micrometer	0 to 1 (0 to 25); reads .001, .0001 with a vernier	Skin thickness, rivet shank, drill shank and pin diameters
Depth micrometer	Rods in 1 (25) steps; reads .001	Depth of steps, recesses and counterbores
Dial indicator	Reads .001 or .0001 per division	Flushness, runout and step height from a base or a stand
Steel rule	6 and 12 (150 and 300); 1/64 and 1/100 graduations	Layout, edge distance and rivet pitch on the sheet

What to check when buying

Check	What to look for
Resolution	.001 in (0.025 mm) for a caliper; .0001 in for a micrometer used on skins and shanks
Calibration certificate	Traceable to a national standard, with the serial number of the tool
Measuring faces	Hardened or carbide faces, flat and parallel, no nicks
Micrometer stop	Ratchet or friction thimble, so every reading has the same force
Zero	The dial or display returns to zero with the jaws closed, every time
Lock	Lock screw on the slider and lock ring on the micrometer spindle
Digital caliper	Inch and mm, a standard battery and a display that holds a reading
Case	A fitted case that keeps the jaws and faces apart from other tools

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Accessories

Item	What it is for
Gauge blocks	Known sizes to check a caliper or a micrometer before use
Micrometer standard	The setting rod for a micrometer whose range does not start at zero
Magnetic base	Holds a dial indicator on a steel table or a fixture
Indicator points	Flat, ball and long points for flushness and step readings
Spare battery	For digital calipers and indicators
Lint-free cloth	Cleans the faces before each reading

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