

ENGINEERING PROBLEM ASSESSMENT

Fixed-price remote assessment · one defined problem

REFERENCE KEVOS-A-SAMPLE-001
CUSTOMER Sample Manufacturing Co. (fictional)
DATE 16 October 2026
PREPARED BY KEVOS® (sample)

SAMPLE REPORT · A fictional example that shows the format only. It is not client work and contains no real engineering evidence.

01 PROBLEM DESCRIPTION

A welded bracket does not seat consistently on its mounting plate during final assembly. Operators sometimes ream or slot the holes to fit the bolts, which adds time and varies between builds.

02 INFORMATION SUPPLIED

- Three photographs of the bracket fitted to the plate (fictional sample)
- PDF drawing of the bracket, revision B (fictional sample)
- Operator description of the assembly sequence

03 PRELIMINARY OBSERVATIONS

- Both mounting holes are dimensioned from the bracket edges rather than from a common datum.
- The holes are drilled before welding, and the photographs suggest some distortion near the weld.
- No locating feature controls the bracket's position on the plate before the bolts go in.

04 POSSIBLE CONTRIBUTING FACTORS

- Weld distortion moving the hole positions
- Tolerance stack-up between edge-referenced holes
- Assembly sequence that relies on the bolts to locate the part

08 ASSUMPTIONS AND LIMITATIONS

- Based only on the information supplied and a 30-minute discussion; no parts were inspected.
- Findings are preliminary and are not certification or design sign-off.
- Options need verification before implementation.

05 IMPROVEMENT OPTIONS

- A Weld fixture with locating pins**
Hold the hole positions during welding so distortion cannot move them.
- B Datum-referenced positional tolerance**
Dimension both holes from one datum and make one hole a slot to absorb the remaining variation.
- C Drill after welding**
Move hole drilling or reaming to after welding, if cost and access allow.

06 RECOMMENDED NEXT STEP

Measure the hole positions on ten brackets before and after welding to confirm whether distortion or the drawing tolerances dominate, then develop the matching option.

07 ADDITIONAL VERIFICATION NEEDED

- Hole-position measurements on a sample of parts
- Check of the plate's own hole positions
- Confirmation of the weld sequence used

09 POSSIBLE FOLLOW-ON WORK

Jig or Fixture Concept Package, or a Drawing and CAD Update.

PROFESSIONAL REVIEW

Not applicable: sample only

SIGNATURE

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DATE

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