

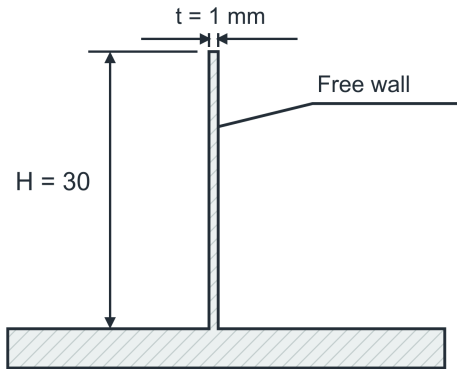
Thin walls & material behavior

Review the whole wall: height, thickness, support and material condition.

DESIGN INTENT Dimension wall height and thickness together.

01 Tall, slender section

SECTION / WALL ROOTED IN A BASE

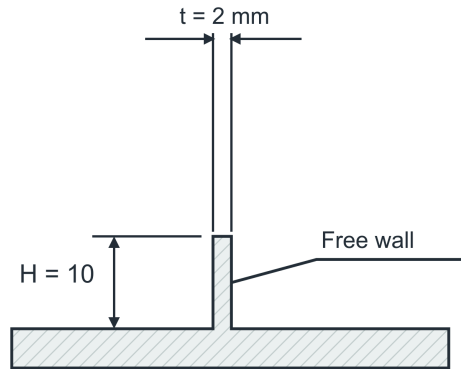


Both views use the same scale. No deflection modeled.

$H = 30 \text{ mm} / t = 1 \text{ mm}$

02 Shorter, thicker section

SECTION / WALL ROOTED IN A BASE



Both views use the same scale. No deflection modeled.

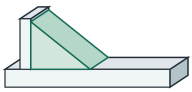
$H = 10 \text{ mm} / t = 2 \text{ mm}$

WORKED EXAMPLE / mm

Geometry ratio = unsupported height / thickness

$30 / 1 = 30 \mid 10 / 2 = 5$

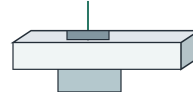
03 Support the free span



A rib or thicker root can help support a wall. Preserve clearance and mass targets; check loads, fatigue and stress concentrations.

CAD: shorten spans or add a permitted rib.

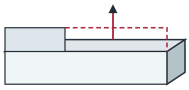
04 Provide a stable grip



Thin features can move under clamp force and spring back when released. A supported gripping area helps the workholding plan.

CAD: leave accessible support and grip faces.

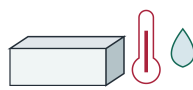
05 Avoid needless one-sided cuts



Residual stress and asymmetric removal can move the part. Review stock condition and the roughing/finishing sequence with the shop.

CAD: remove only the material function needs.

06 Specify the material state



Alloy/temper and polymer grade matter. Temperature, moisture and stress relaxation can change dimensions after machining.

CAD: define grade and measurement condition.

WHAT THIS DOES NOT PROVE

H/t describes slenderness. It is not a stiffness calculation, a vibration prediction or a universal pass/fail limit.

BEFORE RELEASE Protect fit, loads, sealing and required material sections when changing geometry.

- ☐ Dimension height and thickness together.
- ☐ Identify critical free-state dimensions.
- ☐ Review stock stress and asymmetric removal.
- ☐ Show where supports or ribs are permitted.
- ☐ Specify alloy, temper/hardness or polymer grade.
- ☐ Agree measurement temperature and conditioning when relevant.

Illustrative geometry; not to scale. No universal shop limits or structural approval. Drawing and approved process requirements govern.