

Concept 23.2

Hi-Fi Speaker Miniature

R9 Soapbar | Rapid Product Solutions | Supplier brief

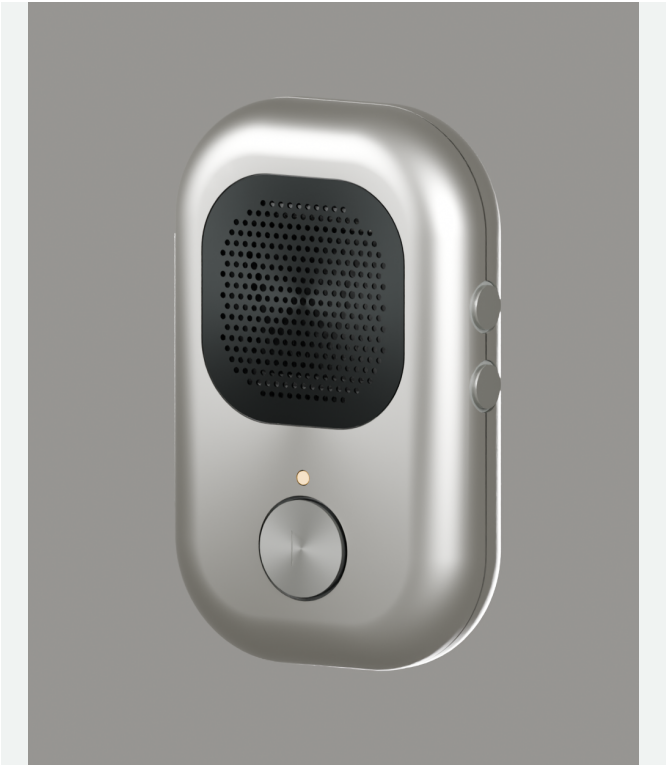
WIDTH (mm)	HEIGHT (mm)	DEPTH (mm)
80	128	28.5

Body dimensions. Overall including modeled controls and recessed rear screws: 81.4 × 128 × 29.4 mm (width × height × depth).

Inspiration photo



CAD assembly / R9 Soapbar



Appearance intent; CAD shows the current engineering proposal. Views are not to scale.

CAD front



CAD rear



CAD exploded



02 Quote and materials / 03 Build and inspect / 04 Inputs and delivery

Quote and materials

R9 Soapbar | Rapid Product Solutions | Rounded R28 soap-bar enclosure with R12 edge rolls, rebuilt insulated carrier and recessed rear closure.

Please review manufacturability and quote a staged enclosure prototype for Walkie One, a handheld push-to-talk voice device. We need to evaluate grip, button operation, speaker/microphone openings, status light, charging access and serviceability.

What to quote first

Quote CNC workholding/thin-wall review and process/fit coupons first, then one unpowered fit article and one appearance article. Confirm the 1.0 mm compound-curved shells and blind bosses are feasible before cutting a full metal set.

Materials and processes

Steel shells	304 stainless, 1.0 mm nominal skins with integral blind front bosses. Rapid lists 304 CNC machining, but this thin-wall construction needs specific workholding/process acceptance. A formed-shell alternative requires separate engineering; no developed shell blank is supplied.
Grille and finish	Separate 0.60 mm stainless grille; retain exact flat DXF. Longitudinal satin shells, radial satin play cap and black PVD grille are proposed. PVD and specialty grille cutting need direct/partner confirmation.
Internal parts	PA12 carrier, POM controls, silicone diaphragms, clear PMMA guide and PET isolation. Rear PC/ABS RF window must remain nonmetallic; no conductive plating/paint on that window.

Published capability is not acceptance of this specific geometry. Exact grades, fine tolerances, thin-section casting, specialty coatings/cutting and test services need Rapid confirmation. General website tolerances do not replace the finished drawing tolerances.

Build and inspect

Size and PTT	80 x 128 x 28.5 mm body; 81.4 x 128 x 29.4 mm overall. Outline R28, edge rolls R12, grille corners R18.1. PTT 69.4 x 10 mm; bottom Y-34, top Y35.4. USB cap gap 4.5 mm.
Blind fastening	Four M2 x 20 rear screws recessed 4 mm into rebuilt collars. Nominal engagement 3.3 mm; tip reserve 0.7 mm. STEP bores are major thread envelopes, not tap-drill sizes. Qualify head/drive, tapping, galling and torque.
Controls and USB	Test bending, guidance and actuation along the long PTT. Lower USB board/socket/interconnect are provisional envelopes; the modeled lower opening is not electrically connected to the original PCBA.
Mass and RF	Modeled shells total about 163.2 g; modeled custom parts/hardware about 233.4 g exclude electronics. Do not quote finished device mass. The small RF window/antenna zone is an unvalidated reservation.

Assembly order

1. Inspect finished metal, deburr touch surfaces and gauge blind bosses before fitting insulating carrier/controls. Trial control capture, guide bonds and grille stack; use Assembly_Traveler.csv for sequence.
2. Use the supplied PCBA at source scale for fit review. Install real battery, speaker, switches and lower USB assembly only after Walkie One supplies their approved definitions. Keep unresolved regions accessible.
3. Close from the rear with four screws only after thread/torque approval. Record shell fit, PTT end/center behavior, electrical isolation or agreed grounding, window bond and as-built mass; Walkie One owns powered/RF acceptance.

Keep separate

Formed shells, changed wall thickness, attached bosses and alternate black finishes are separate proposals. Do not treat the flat grille DXF as a flat pattern for the compound-curved shells.

Use the supplied artwork at its specified size and position. Approve physical color, texture and marking samples together; screen colors are visual intent. Keep finish and adhesive off guides, stops, acoustic openings, optical faces and service seams unless the drawing explicitly calls for them. Record any proposed substitution before using it.

Inputs and delivery

Rapid is asked to make, finish, inspect and optionally assemble agreed parts using Walkie One-supplied hardware. Walkie One owns electrical design, firmware, battery/charging, RF and acoustic validation. Rapid may quote specialist support separately; these services are not assumed from its website.

Before full metal machining	Rapid with Walkie One mechanical	Thin-wall workholding, minimum wall/deburr plan, blind threads and finish/cutting route; any thicker-wall proposal needs revised CAD approval.
Before functional assembly	Walkie One electrical/mechanical	Lower USB connector PCB/interconnect and mounting, actual battery/speaker, switch carriers/harness, microphone port/duct and approved control loads.
Before final metal/window commitment	Walkie One RF/electrical	Antenna choice and installed tests, shell grounding/ESD and charging/thermal plan. RF may require a larger window or layout change.

Quote and return

Quote each concept separately: one unpowered fit set and the priority samples on page 2, followed by one finished appearance article after sample approval. This is a comparison basis, not an order for all concepts. Show any minimum quantity; confirm the selected concept, quantity, delivery date and ship-to with Walkie One before work starts.

Please itemize parts, fixtures/coupons, tooling, finishing, assembly, inspection and shipping; state lead time from receipt of approved inputs. Identify partner-made work, exclusions and tolerances you cannot hold. Quote a feasible alternative with its effect on fit/appearance rather than silently changing the design.

Return identified parts/samples, the material and finish selections, measured critical dimensions, assembly photos and the completed applicable inspection record. List hand fitting, deviations and unresolved items. Leave unperformed tests blank or NOT TESTED. Walkie One approves samples and engineering changes before repeat finished units.

Use these files

This brief controls supplier scope and responsibilities. The current per-part STEP, BOM and finished-interface drawings retain the technical requirements. Stop and return a marked question if they disagree. Millimetres throughout. Assembly STEP is a reference, not a single part to print. Purchased hardware, foam, cloth and adhesive solids are not rigid-print instructions.

BOM: docs/BOM.csv

Records: docs/Assembly_Traveler.csv; docs/Open_Items_and_Qualification.csv; docs/Rapid_Open_Items.csv.

The six-page Engineering_Detail.pdf documents the new shape, fastener datums, electronics stack and verification. BOM and grille DXF define parts and the flat profile.

Supplier capabilities checked 06 Sep 2026. Source links and confirmation limits: docs/Rapid_Capabilities.md.
<https://www.rapid-products.com/>

A softer, built-in curve.

The inspiration, prior CAD and rebuilt CAD are shown separately. Only R9 images describe the delivered parts.



Inspiration / concept image



R8 / previous CAD



R9 / rebuilt CAD

28 mm plan corners, 12 mm edge rolls

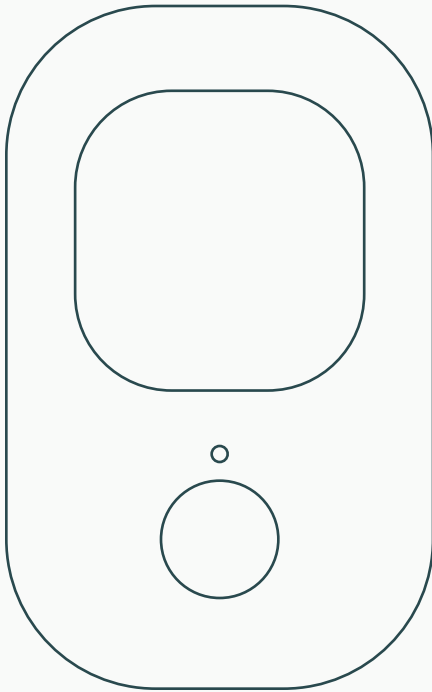
The old 12 mm outline radius is replaced with R28. Top and bottom straight lengths reduce from 56 to 24 mm; side straights reduce from 104 to 72 mm. The grille corner radius grows from 12.1 to 18.1 mm.

Same body envelope; new dependent parts

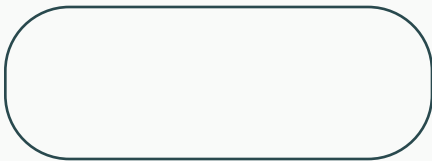
Body: **80 x 128 x 28.5 mm**. Overall with controls: **81.4 x 128 x 29.4 mm**. The shells, carrier clearance, rear RF window, adhesive and fastener stack follow the new surfaces. R8 and R9 parts are not interchangeable.

Geometry that can be rebuilt.

Millimetres throughout. X is width, Y is height, Z runs from the rear to the front. STEP controls 3D surfaces.



FRONT OUTLINE / 80 W x 128 H



MID-BODY SECTION / 80 W x 28.5 D

Exterior

Outline corner R28

Front/rear roll R12

Nominal skin 1.0

Body depth 28.5

Front/rear seam 0.6

Front controls

Grille 54.2 x 56.2, R18.1

Grille center Y=20

Play diameter 22, Y=-36

Status diameter 3, Y=-20

Volume Y=20 and Y=2

PTT and charging

PTT cap 69.4 x 10; Y=-34 to +35.4

PTT opening 71.4 x 12; center Y=0.7

USB opening 13 x 7; Y=-45, Z=15.3

Vertical cap-to-USB opening gap: 4.5

Proposed machining ± 0.10 mm and PA12 ± 0.25 mm require supplier confirmation. Finished edge breaks 0.15-0.25 mm. Compare actual finished parts to the per-part STEP; these overview diagrams do not replace inspection drawings or an agreed tolerance stack.

Closure follows the curved back.

Four rear-access screws, with rebuilt bearing collars and carrier towers. No front fastener holes.



Rear closure datums

Upper screws $X=\pm 30$, $Y=43$

Lower screws $X=\pm 24$, $Y=-52$

Hardware: M2 x 20

Head back: $Z=4.0$

Head bearing: $Z=5.3$

Rear-to-carrier seat: $Z=7.3$

Carrier-to-front boss: $Z=22.0$

Screw tip: $Z=25.3$

Blind bore end: $Z=26.0$

Nominal engagement: 3.3

Tip clearance: 0.7

Bore-floor screening: 1.1 minimum

Use a qualified fastening stack

The four 4 mm-deep rear recesses keep standard head envelopes inside the rounded shell. CAD bores show thread-major envelopes, not pilot drills or helical threads. Supplier must select actual screw head/drive, pilot, useful thread, torque and anti-galling treatment.

Rear RF window

The 46 x 12 mm projected window at $Y=54$ follows the same curved envelope. PC/ABS is an unfilled candidate with a nominal 1.8 mm skin and a conformal internal bond flange. No conductive finish; final antenna selection, window sizing and RF tuning remain open.

Separate parts, separate processes.

The exploded view uses illustrative offsets. It does not prove an assembly path.



Metal and insulating structure

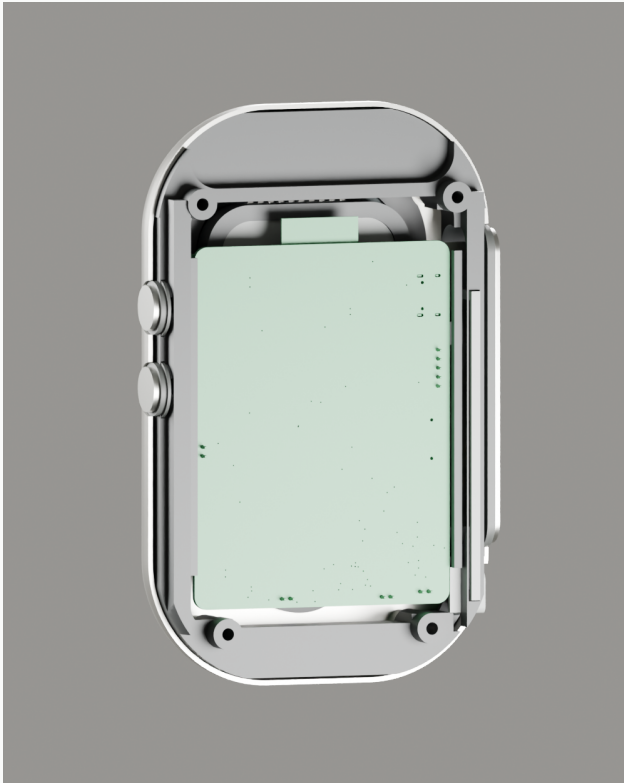
304 stainless shell skins: nominal 1.0 mm with integral blind bosses. Black stainless grille: 0.6 mm with 1.4/1.8 mm bores. PA12 carrier and supports; POM guides/actuator; silicone diaphragms. Estimated shell pair: **163.2 g**. All modeled parts/hardware: **226.2 g**, excluding electronics and unmodeled items.

Supplier request

Quote thin-wall CNC/workholding review and process/fit coupons first, then an unpowered fit article and an appearance article after acceptance. Confirm finishing, edges, wall stability, tapped bosses and inspection. A formed-shell alternative requires separate tooling and attached-boss development. No compound-shell flat pattern is supplied.

Package the actual electronics.

The original PCBA is unchanged and unscaled. Other component models are explicitly provisional.



Nominal rear-to-front Z

Isolation 1.3-1.8
Tray base 1.8-2.8
Battery 3.2-9.2
Actual PCBA 10.1-19.6
Play board 21.0-22.2
Play switch 22.2-24.4
Speaker 21.0-26.0
Grille support 26.3-27.5
Grille bond 27.5-27.85
Grille 27.85-28.45
Front skin outer Z=28.5
Play cap 28.4-29.4

Functional design inputs still required

Select the lower USB receptacle, separate connector PCB, mount and electrical interconnect to the main PCBA. The old main-board connector remains a reference, not a completed charging connection. Select final battery/protection, speaker, side switches/supports, antenna and microphone duct before a powered build.

Validate the complete device

Measure PTT force and bending at top, center and bottom; qualify guides, diaphragm and switch return. Check battery swelling, routing, electrical isolation/ESD, charging heat, acoustics, antenna tuning and service access. The supplied CSV records retain the open items and responsible roles.

Verified CAD. Physical tests next.

Geometry evidence applies to this revision and these exported files only.

What was checked

28 valid individual single-solid parts; 0 positive-volume static intersections. Exported STEP validity and volume agreement, watertight STL, sampled 0-0.3 mm rigid control travel, 4 mm driver access and actual-board scale preservation are recorded in the validation folder.

What to fabricate first

Use material/fit coupons and an unpowered fit article to evaluate the new outline, shell finish, closure stack, port access and button clearances. Do not print the whole assembly as one part. Purchased screws, adhesive, foam and reference electronics are not rigid printed components.

Portable sources and deliverables

code/build_revision.py is the parametric source. step/ contains case and reference assemblies plus individual parts; stl/ contains matching meshes. drawings/ contains the exact planar grille DXF and coupons. previews/ includes CAD views and the editable Blender scene. docs/ contains BOM, traveler, source provenance and package inventory.

File consistency

Rebuild in the order described in README.md. The final package inventory binds files by SHA-256 and the ZIP is CRC-verified. New geometry requires new exports, evidence, renders, documents and website assets. The reference image is kept separate from CAD imagery.

Scope and release

This is a supplier engineering-review package, not an order or a production release. Walkie One owns electrical, firmware, battery/charging, RF and acoustic qualification. No drop, ingress, thermal or lifecycle rating is asserted. Resolve discrepancies between the STEP, BOM and instructions before fabrication.