

LIFT-003 / REV A

Hydrogen lifting-envelope concept

STATUS: CONCEPT / UNQUALIFIED. Cost unknown. Patent review not performed. EU conformity not determined.

Source and requirements

Original extraction paragraph references: 813, 822, 1072

Source diameter about 66.5 m; operating elevation 200 m; line load about 3283 kg/m. Full envelope and dynamic loads are missing.

Candidate manufacturing route

Fab 1: coupon-scale barrier research

Fab 4: membrane and seam fabrication only after qualification

Fab 5: leak and structural test programme

Governing models

P18, S12, E10, E13, E28, E29, E50 — see the English formula register; use only within each stated domain.

Critical missing evidence

Envelope weight, seams, fatigue, hydrogen containment and ignition hazards

Wind/aeroelastic model and full tether/anchor load path

Feasible construction, weather shutdown and failure containment

Cost model and missing quotations

$C_{unit} = (\text{materials} + \text{machine/setup} + \text{energy} + \text{labour} + \text{QA} + \text{overhead}) / \text{accepted units}$. Record currency, price date, batch quantity, yield, rework, contingencies and uncertainty. Avoid double-counting costs included in machine rates. No supplier quotes have been obtained.

Envelope area and qualified coating

Seams, lifting gas and replenishment

Anchors, metrology, weather operations and maintenance

Patent-review record

Search seed (not executed): tethered hydrogen aerostat lifting envelope barrier coating suspended pipeline

Required records: jurisdictions, search dates, CPC/IPC classifications, patent families, publication PDFs, independent claims chart, legal status and expiry/lapse review. Product geometry and intended use must be frozen sufficiently for a meaningful review.

Patent publication PDFs are not attached because no product-specific patent search or claims assessment has been performed. This dossier is not a patent, clearance opinion or claim of novelty.

EU and other regulatory applicability

Aviation, land-use, hazardous-atmosphere and construction requirements depend on site and legal classification

No automatic CE or aviation approval follows from the buoyancy equation

Starting sources: EUR-Lex Regulation (EU) 2023/1230 and Directive 2014/68/EU where relevant; EPO Espacenet and official registers for patent research. Full applicable standards, legal classification and jurisdiction-specific approvals must be verified.

Acceptance and reproducibility

Define the product measurands, test environment, tolerances, calibrated instrumentation, lot traceability and a statistically justified sampling plan. Numerical convergence, manufacturing yield and service reliability are separate criteria. No 99% feasibility or 98% product-equivalence claim is established.

Release gate

Do not treat a proposed route as a toolpath. Complete geometry, material allowables, process qualification, simulation verification, prototype tests, inspection, conformity review and responsible engineering approval before release.