

PIPE-002 / REV A

Composite pressure-pipe family

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

Source and requirements

Original extraction paragraph references: 818, 870, 907

Internal diameter 2.0 m; nominal wall 15 mm; source design pressure 18.95 MPa. These are source inputs, not qualified dimensions.

Candidate manufacturing route

Fab 1: barrier coating qualification

Fab 3: mandrels and end fittings

Fab 4: layup, cure and joining

Fab 5: inspection and controlled assembly

Governing models

P07, P28, S07, S08, S09, S11, E11, E14, E48 — see the English formula register; use only within each stated domain.

Critical missing evidence

Ply schedule, qualified allowables and environmental knockdowns

Pressure fatigue, joints, permeation, fracture and long-term creep

Full pressure transient and support load spectrum

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.

Fibre/resin per metre and scrap

Mandrel and cure cycle

Coating, fittings, nondestructive examination and proof-test facilities

Patent-review record

Search seed (not executed): composite pressure pipe multilayer liner hydrogen permeation ALD winding

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

Pressure Equipment Directive scope and pipeline exclusions must be assessed for the actual installation

Applicable composite pressure-pipe and structural design rules require specialist selection

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.