

FABRICATION · ENGINEERING SPECIFICATION

2D Shapes & Sheets

This specification covers custom CNC hot-wire-cut 2D shapes and cut-to-size sheets in flame-retardant expanded polystyrene, made to order against a supplied drawing in Technopol's standard EPS density grades.

Verified technical data

Property	Value	Standard
Product / build-up	Custom CNC hotwire-cut 2D shapes & cut-to-size sheets, from flame-retardant EPS (cut to order, not stocked)	—
Nominal density (standard grades)	12–30 (plus 27 cornice grade) kg/m ³	—
Thermal conductivity (λ) at 10 °C	0.033–0.045 W/m·K	—
Compressive stress at 10% compression	60–200 kPa (min)	—
Reaction-to-fire class	B-s1,d0 (Class B)	SANS 53501-1 (EN 13501-1)
Cut-size limits (max length × width; thickness)	3000 × 1240; thickness 10–1030 mm	—
Standards & certifications	Fire tested to SANS 53501-1 / SANS 53823 (SBI) / SANS 11925-2 (ignitability); company ISO 9001:2015 (ISO 14001 & 45001 lapsed Mar 2026, recertification in progress); Agrément SA 2020/609 (covers the LiteCore Building System only)	SANS 53501-1

Scope

- 1.0** This specification covers the supply of custom CNC hot-wire-cut two-dimensional EPS profiles and cut-to-size flat sheets, cut to a customer-supplied drawing or brief.
- 2.0** The product is made to order and is not supplied from stocked pre-cut inventory; the order is defined by the chosen EPS grade, thickness and cut profile rather than a fixed SKU.
- 3.0** This specification excludes structural spanning or load-bearing applications; the cut parts are decorative, insulation, packaging and void-forming elements only.
- 4.0** This specification excludes any fixing or installation system beyond gluing enclosed letterforms closed; the fixing method is application-dependent and is the responsibility of the specifier.

Materials

5.0 The base material shall be expanded polystyrene (EPS) supplied exclusively in flame-retardant (fire-retarded) grades, per the price-list statement 'All Products are Fire Retarded Grades'.

6.0 The part shall be a single monolithic EPS material shaped by CNC hot-wire cutting, not a bonded or layered composite.

7.0 EPS grade shall be selected from Technopol's standard nominal densities of 12, 15, 16, 20, 24 and 30 kg/m³, plus a dedicated 27 kg/m³ cornice grade.

8.0 The specific ordered grade shall be confirmed on order, as thermal, density and strength properties are grade-dependent.

9.0 There is no applied facing; the part is bare cut EPS unless a separate finishing operation is specified by the specifier.

Performance

10.0 Thermal conductivity (λ) at 10 °C shall range from 0.033 W/m·K (EPS30) to 0.045 W/m·K (EPS12), grade-dependent.

11.0 Compressive stress at 10% compression shall range from a minimum of 60 kPa (EPS12) to 200 kPa (EPS30), grade-dependent.

12.0 Cross-breaking strength shall range from a minimum of 80 kPa (EPS12) to 250 kPa (EPS30), grade-dependent.

13.0 Safe working load at 1% nominal compression shall range from a minimum of 15 kPa (EPS12) to 100 kPa (EPS30), grade-dependent; these are material properties and not member design values.

14.0 The cutting envelope shall be a maximum length of 3000 mm by a maximum width of 1240 mm, with cut thickness from 10 mm (minimum, subject to a 10-sheet minimum order quantity) up to 1030 mm; parts exceeding the envelope shall be segmented and joined.

15.0 Per-thickness R-values and U-values are NOT established or published by Technopol for this product and shall not be stated as fact; where required they must be derived from the grade λ and chosen thickness or obtained externally.

16.0 Structural span and load-capacity data are NOT established for this product and shall not be inferred from the material property figures.

Fire

17.0 The EPS material shall carry a reaction-to-fire classification of B-s1,d0 (Class B) determined per SANS 53501-1 (the SA adoption of EN 13501-1), using the SBI test SANS 53823 and ignitability test SANS 11925-2.

18.0 The reaction-to-fire result is supported by test report '2023-08-17 Technopol', sample tested 04 August 2023 at Ignis Testing Laboratory, Cape Town, classification report signed at Bellville on 21 August 2023 by DJ Streicher (Pr Eng 880107), with stated validity of 5 years.

19.0 The same fire-retardant EPS is also cited as B1 to SANS 10177-11 for thickness under 120 mm (confidence: probable, from the company profile).

20.0 The classification is a reaction-to-fire result for the material only and is NOT a fire-resistance (REI / minutes) rating and does not describe any wall, roof or assembly.

21.0 Notwithstanding the flame-retardant grade, EPS remains a combustible organic foam and shall be detailed in accordance with the relevant building fire requirements for the end use.

Execution / installation

22.0 Enclosed letterforms shall be supplied with a small deliberate perimeter break from the single continuous cutting pass, which shall be glued closed on site to restore the seamless closed shape.

23.0 Oversized parts shall be supplied segmented and joined on assembly.

24.0 Thin cuts at the 10 mm minimum thickness shall be ordered in a minimum quantity of 10 sheets to preserve packaging strength.

25.0 No mechanical fixing system is specified by Technopol; the fixing and installation method (adhesive bonding, plastering/skimming, embedding, or mechanical suspension) shall be determined by the specifier per the end use.

26.0 Solvent-based adhesives and coatings shall not be used without verifying compatibility, as they attack EPS (general EPS caution).

Standards & compliance

27.0 Fire testing shall be to SANS 53501-1 (reaction-to-fire classification), SANS 53823 (SBI test) and SANS 11925-2 (ignitability), yielding a result of B-s1,d0.

28.0 The manufacturer holds ISO 9001:2015 (current); ISO 14001 and ISO 45001 LAPSED in March 2026 with recertification in progress and shall not be presented as active.

29.0 Agrément SA 2020/609 covers the LiteCore Building System ONLY and shall NOT be presented as covering plain cut 2D EPS shapes/sheets nor as a general company/product-range approval.

30.0 Manufacturer associations include TIPSASA (and per company profile EWASA, EPSASA, APIA, SAECC and CBA); company established 1993.

Specifier's notes — not established in Technopol sources.

- Per-thickness R-value and U-value are NOT established by Technopol for this product; obtain by derivation from grade λ and thickness, or externally, and do not present published figures as fact.

- Oxygen index is NOT established: the flat kit PDF states 'oxygen index $\geq 24\%$ ', but no Technopol document measures an oxygen index for this EPS — the figure originates in generic ASTM C578 / third-party geofoam datasheets and must be treated as unverified for this product.
- Standard sheet plan sizes and dimensional/cutting tolerances are NOT established; the product is explicitly cut-to-order and the price list is organised by thickness only.
- Structural span and load-capacity data are NOT established; none exist for these decorative/insulation/packaging parts.
- Water-absorption values are NOT established; the physical-properties table gives vapour transmission/resistivity but no water-absorption figure.
- A fixing/installation system beyond gluing enclosed letters closed is NOT established; installation depends entirely on the end use and is the specifier's responsibility.
- Adhesive/coating compatibility specifics for cut parts are NOT documented; only the general EPS solvent-sensitivity caution applies — verify externally.
- Lead times are NOT quantified; stated only to depend on size and complexity, with nothing stocked pre-cut.
- Unresolved contradiction — fire report date: an early factbase entry reads the report as 'authorised 17-08-2023', but page 15 of the same PDF is signed at Bellville on 21 August 2023; the 21 August 2023 signature date is the verified one (17 August 2023 is the report/authorisation reference date).
- Unresolved contradiction — ISO marks: the Sep-2025 brochure and Aug-2025 company profile still display ISO 14001 and 45001 logos, but both lapsed in March 2026; present only ISO 9001:2015 as current.
- Unresolved contradiction — Agrément scope: the company profile lists Agrément SA 2020/609 among 'Certifications' alongside the ISO marks, which can read as a general company approval; its verified scope is the LiteCore Building System only and it does not cover this product. No Technopol document confirms Agrément coverage of plain cut EPS shapes/sheets — obtain confirmation externally if required.
- The B1 to SANS 10177-11 (<120 mm) alternate rating is stated at 'probable' confidence from the company profile, not from a primary test report for this product.