



PRS NEOLOY® TOUGH-CELLS – CATEGORY D

(Cellular Confinement System)

SPECIFICATIONS

SYSTEM PHYSICAL PROPERTIES	
GENERAL PROPERTIES	DESCRIPTION
Material	Neoloy® polymeric nano-composite alloy Composite alloy of polyester/polyamide nano-fibers dispersed in polyethylene matrix
Cell Wall Surface Texture	Cell wall surface is textured for internal friction efficiency
Cell Wall Perforation	Cell wall surface is perforated for internal friction and proper drainage. The perforations are 6-12% of the cell wall in semi-uniform pattern along and across the entire cell wall. The hole size diameter ≤ 10 mm to prevent aggregate partition across cells.
Cell Wall Height ($\pm 5\%$)	50, 75, 100, 120, 150, 200, 300 mm (2, 3, 4, 4.7, 6, 8, 11.8 in)
Distance between Weld Seams ($\pm 2.5\%$)	330, 356, 445, 660, 712 mm (13, 14, 17.5, 26, 28 in)
Traceability	Each section marked for full detailed traceability

SYSTEM MECHANICAL PROPERTIES			
PERFORMANCE TESTS	VALUES	UNITS	STANDARD TEST METHOD
ELASTIC STIFFNESS (DYNAMIC MODULUS)			
Dynamic Mechanical Analysis (DMA) at sample elevated temperature: +30° C +45° C +60° C	> 1900 > 1400 > 1000	MPa	ISO 6721-5 (2019) (DMA)
Testing Guidelines: Measures the maximum dynamic modulus that can be applied while the polymeric material maintains its elastic stiffness behavior. 3 temperature results are recorded (+30°C, +45°C, +60°C). Test Parameters: Dynamic Mechanical Analysis (DMA); Mode: Multi-Frequency-Strain of 1 Hz. Allowed Tolerance: $\pm 10\%$			
CUMULATIVE PERMANENT DEFORMATION			
Cumulative Permanent Deformation (Creep Resistance) Stepped Isothermal Method (SIM): Step 1 at 44°C Step 2 at 51°C Step 3 at 58°C Full cell size (with perforation pattern) under fixed load of 6.1 kN/m.	≤ 2.0	% Cumulative Deformation	ASTM D-6992 (SIM)
Testing Guidelines: Loading of 6.1 kN/m simulates typical tensile strain on the cell wall when the system is located at the base/sub-ballast layer. The 3 temp. increments simulate accumulated loading of more than 75 years of operations. The maximum deformation criteria is defined by ISO TR-18228-5. Allowed Tolerance: $\pm 15\%$			
CELL HOOP TENSILE STRENGTH			
Strength at Yield – perforated (Wide-width)	> 22	kN/m	ISO 10319
Testing Guidelines: Standard ISO 10319 test modified to achieve more accurate results by using more representative test sample size; strip is cut adjacent to 2 seams and clamped so distance between clamps is 1/2 of cell height; test direction is perpendicular to seams. Test sample measured at strain rate 100 mm (4 in) /min at 23°C. Test of perforated tensile strength is conducted on the sample area with the densest perforations. Allowed Tolerance: $\pm 10\%$			
Seam Weld Strength – Weld Splitting	> 22	kN/m	ISO-13426-1 Part 1 Method C
Testing Guidelines: adjust seam to simulate optimum open cell size (80° - 100°)			
PHOTOCHEMICAL & OXIDATION DURABILITY			
Resistance to UV Degradation (UV and Oxidation Resistance)	≥ 1600	Minutes	ASTM D5885 (HPOIT @ 150°C)
Testing Guidelines: the accelerated method simulates effective design life under UV radiation of at least 75 years. Allowed Tolerance: $\pm 10\%$			



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DATA SHEET

PRODUCT PART NO.						
Example: PRS- Neoloy-TOUGH-CELLS- 330-150-76-P-W-C						
PRS-	Neoloy- TOUGH- CELLS	330- (13)	50- (2)			
		356- (14)	75- (3)	⁽¹⁾	⁽²⁾	⁽³⁾
		445- (17.5)	100- (4)	up to	P-	
			120- (4.7)	106-	X-	GR-
						C
		660- (26)	150- (6)			
		712- (28)	200- (8)			
		Weld Spacing Distance Mm (in)	Cell Height mm (in)	No. of Strips / Section	P-Perforated X-Non- perforated	Color GR- Gray
						Category
<i>(1) No. of Strips – customized by project from 4 to 106 strips; different heights available upon special order</i>						
<i>(2) Perforations – from ~6-12% of cell wall area of variable dimensions and shapes</i>						
<i>(3) Colors – additional colors available upon request</i>						
CELL & SECTION NOMINAL DIMENSIONS						
PROPERTIES	NOMINAL	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION
Distance between Weld Seams	±2.5%	330 mm (13 in)	356 mm (14 in)	445 mm (17.5 in)	660 mm (26 in)	712 mm (28 in)
Cell Wall Heights	±5%	50, 75, 100, 120, 150, 200,300 mm (2, 3, 4, 4.7, 6, 8,11.8 in)				
Cell Dimension (Optimal opening)	±3%	245 x 210 mm (9.65 x 8.27 in)	260 x 224 mm (10.24 x 8.82 in)	340 x 290 mm (13.39 x 11.42 in)	490 x 421 mm (19.29 x 16.53 in)	520 x 448 mm (20.40 x 17.64 in)
No. of Cells/m²	±3%	40	35	22	10	8
Standard Section Size ⁽⁴⁾ (Expanded)	±3%	2.5 x 8.0 m (8.20 x 26.25 ft)	2.7 x 7.4 m (8.86 x 24.28 ft)	2.8 x 10.7 m (9.19 x 35.10 ft)	2.5 x 16.0 m (8.20 x 52.49 ft)	2.7 x 14.8 m (8.86 x 48.56 ft)
Standard Section Area (Expanded)	±3%	20 m² (215.28 ft²)	20 m² (215.28 ft²)	30 m² (322.92 ft²)	40 m² (430.56 ft²)	40 m² (430.56 ft²)
<i>(4) Section Sizes – customized size sections available upon request</i>						
SHIPPING DATA						
<i>The following data will be made available per order:</i>						
Neoloy Series + Configuration: • Height (mm) • Weld Distance (mm) • No. of strips per section	Section – Weight • Weight per section (kg)		Pallet : • No. of sections • Area per pallet (m²) • Gross weight (kg)		Quantity (m²): • Per 20’ Container • Per 40’ Container	
CERTIFICATIONS and ACCREDITATIONS						
DESCRIPTION			ISSUED BY		CERTIFICATE NUMBER	
Quality Management System Certification – ISO-9001:2015 for R&D, Manufacturing and Marketing			Ronet (ANAB accredited)		Q3600	
Environmental Management System Certification – ISO-14001:2015			Ronet (ANAB accredited)		E3600	
Occupational Health & Safety Management Certification -ISO-45001:2018			Ronet (ANAB accredited)		HS3600	
EC Certificate for Factory Product Control			ITB, Building Research Institute, EU		1488-CPR-0099/Z	