

Technical Data Sheet

FORCE DALLE

Description	FORCE DALLE is a 4mm thick stabilised polyester reinforced, SBS elastomeric modified bitumen waterproofing membrane. Both surfaces have a film finish and on the upper surface there is a red marker line along the selvedge indicating the 100mm lap width on this anti-root membrane.
Use	Top layer in single or multi layer waterproofing system with anti-root additive for use in inverted, warm and cold flat roofs, green roofs and blue roofs.
Application method	Fully bonded, with fully sealed joints, using torch-on technique to form continuous layer.
Storage	Rolls to be stored upright and away from heat.
Composition	(indicative)

Reinforcement (g/m²) :	Stabilised polyester	180
Binder (g/m²) :	SBS elastomer	5,000
Surface finish (g/m²) :	Thermofusible film	10
Under surface finish (g/m²) :	Thermofusible film	10

Characteristics		Standards (BS)	Units	Value	Tolerance		
					Min	Max	
Dimensions	Length	EN 1848-1	m	8	-1%		
	Width		m	1	-1%		
	Straightness		-	Pass			
	Nominal roll weight		kg	42.0			
	Thickness (on finished product)	EN 1849-1	mm	4.00	3.80	4.20	
Visible defects	New product	EN 1850-1	-	None			
	After ageing to EN 1297		-	NA			
Adhesion of granules		EN 12039	%	NA			
Resistance to tearing (nail shank)	Longitudinal	EN 12310-1	N	NA			
	Cross direction			NA			
Tensile properties: maximum tensile force	Longitudinal	EN 12311-1	N/50 mm	700	600	900	
	Cross direction			600	500	730	
Tensile properties: elongation	Longitudinal	EN 12311-1	%	35	25	55	
	Cross direction			35	25	60	
Peel resistance of joint	Maximum force	EN 12316-1	N/50mm	Selvage	NA	-	-
				End joint	NA	-	-
	Average force			Selvage	NA	-	-
				End joint	NA	-	-
Shear resistance of joint	Maximum force	EN 12317-1	N/50mm	Selvage	600	500	730
				End joint	700	600	900
Flexibility at low temperature	Surface	EN 1109	°C	-16	≤		
	Under surface			-16	≤		
Flow resistance at elevated temperature	New product	EN 1110	°C	100	≥		
	After ageing to EN 1296			NA			
Resistance to impact		EN 12691	mm	2000	≥		
Resistance to static loading		EN 12730 (A)	kg	20	≥		
Dimensional stability		EN 1107-1	%	0.5	≤		

Characteristics		Standards (BS)	Units	Value	Tolerance	
					Min	Max
Form stability under cyclic temperature change		EN 1108	%	NA		
Water vapour transmission properties	New product	EN 1931	-	μ=20000		
	After ageing to EN 1296		-	NA		
Watertightness	New product	EN 1928	-	Pass	<10 kPa	
	After ageing to EN 1296		-	NA		
Watertightness after stretching at low temperature		EN 13897	%	NA		
Reaction to fire		EN 13501-1	-	PND		
Resistance to root penetration		EN 13948	-	Pass		
Dangerous substances consult: http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm		-	-	None		

NA=not applicable due to use of product. PND=Performance not determined.
The manufacturer reserves the right to modify, at any time, the characteristics of this product.