

Product Technical Information

ITA/781
 Revision 3 – 26/10/15
 Page 1/4

MONARPLAN FM G

Product Description and uses:

Monarplan FM G is a PVC-P flexible, stabilized reinforced roofing membranes UV resistant for exposed application and suitable for use under heavy protection.

Monarplan FM G is intended for use :

- on exposed roofs as mechanically fixed roofing system
- on ballasted roofs and roofs under heavy protection as loose laid roofing system.
- on inverted loose laid roofing system.

Connections along upstands are made with structural elements of rigid PVC or with metal plate coated with PVC sheeting (plasticized). On concrete vertical upstands Monarplan can be glued with Icopal contact glue or Colle Contact.

Waterproofing details (corners, drainage outlets, ventilation pipes, penetrations) are realized with Monarplan D or dedicated prefabricated accessories.

Monarplan is welded by hot air.

Composition

Monarplan roof membrane is a high-quality, thermoplastic PVC membrane with a fabric combi scrim, not bitumen resistant.

Dimensions

Value	Nominal
Thickness (mm)	1.5
Roll width (cm)	208
Roll length (m)	15m



Colour

Grey (other colours on request)

Chemical resistance

Monarplan FM G membranes must not be in direct contact with:

- Bitumen, oil, petrol or tar (to avoid contact with bitumen use a chemical separation layer)
- EPS insulation boards (use a chemical separation layer)

Durability

Monarplan FM G is resistant to weathering, chemical oxidation and UV degradation. Monarplan FM G is resistant to micro-organism.

ISO 9001 REFERENCE DOCUMENT

Our company has been awarded the ISO 9001 certificate for all its establishments in France.

Our company reserves the right to modify its composition as a result of technological and experimental improvements.

To obtain the up-date technical data sheet, please contact Siplast



Product Technical Information

ITA/781
Revision 3 – 26/10/15
Page 2/4

Physical and Mechanical Properties

According with EN 13956

Property (as Manufactured)	Test Method	Units	Nominal values	Tolerance
Effective thickness	EN 1849-2	mm	1,5	-5/+10 %
Mass per unit area	EN 1849-2	kg/m ²	1,88	-5/+10 %
Length	EN 1848-2	m	15 / 20	-0/+5 %
Width	EN 1848-2	m	2,12	-0,5/+1 %
Visible defects	EN 1850-2	-	Pass	-
Straightness	EN 1848-2	mm	≤ 30	-
Flatness	EN 1848-2	mm	≤ 10	-
Reaction to fire	EN 13501-1		Class E	-
Water tightness	EN 1928 (B)		Pass	-
Tensile strength at max	EN 12 311-1	N/50mm	≥ 825/750	-
Resistance to static load	EN 12730 (Method A and B)	kg	≥ 20	-
Resistance to impact	EN 12691 (Method A and B)	mm	≥ 600/900	-
Tear resistance	EN 12 310-2	N	≥ 150/175	-
Peel resistance of Joints	EN 12316-2	N/50mm	≥ 300	-
Shear resistance of Joints	EN 12317-2	N/50mm	≥ 800	-
Durability UV, heat and water (after 5000 hrs UV ageing)	EN 1297		PASS with no cracks	-
Cold temperature flexibility	EN 1109	°C	≤ - 25	-
Hail resistance over rigid substrate	EN12583	m·s ⁻¹	≥ 22	-
Hail resistance soft substrate	EN12583	m·s ⁻¹	≥ 30	-
Water vapour resistance (μ)	EN 1931		20.000	± 30 %

Product Technical Information

ITA/781
Revision 3 – 26/10/15
Page 3/4

Physical and Mechanical Properties

According with ASTM D 4434

Monarplan FM membrane has been subjected to the tests required by ASTM D4434 “Standard Specification for Poly (Vinyl Chloride) Sheet Roofing”. It meets the ASTM requirement for Type III.

The results of each test as well as typical values are listed below.

Property (as Manufactured)	Test Method	Units	ASTM D4434 Type III Requirement	Result	Typical values
Overall thickness	ASTM D751	mm	min 1.14	PASS	1.5
Thickness over scrim	ASTM D7635	mm	min 0.40	PASS	0.50
Breaking strength	ASTM D751 B	N/inch	min 890	PASS	1000
Elongation at break for PVC material	ASTM D751 B	%	min 250/220	PASS	>250/220
Elongation at break for fabric	ASTM D751 A	%	min 15	PASS	35
Seam strength	ASTM D751 B	%	min 75 % of breaking strength	PASS	>75 % of breaking strength
Retention of properties after heat aging	ASTM D3045 (80 °C/56 days)	%	min 90 % of original breaking strength and elongation	PASS	PASS
Tearing strength,	ASTM D751	N	min 200	PASS	400
Low temperature bend	ASTM D2136 at -40 °C	-	Must pass at -40 °C	PASS	PASS
Accelerated weathering test	ASTM G154 5000 h UVA	-	no cracking and crazing at 7x magnification	PASS	PASS
Linear dimensional change	ASTM D1204 (80 °C/6 h)	%	max 0.5	PASS	<0.10
Water absorption	ASTM D570 (70 °C/168 h)	%	weight change max ±3.0	PASS	2%
Static puncture	ASTM D5602 (15 kg/23 °C)	-	PASS	PASS	PASS
Dynamic puncture	ASTM D5635 (20 J/23 °C)	-	PASS	PASS	PASS

Product Technical Information

ITA/781

Revision 3 – 26/10/15

Page 4/4

Advantages

- Light weight solution
- Suitable for various types of roofs
- Flexibility of the membranes suitable for variety of roof shapes
- Smooth aspect of the surface to meet all aesthetic concerns of architects and building developers
- Hot-air welding
- Large width rolls (up to 212 cm wide) for fast application
- Resistant to ageing and all common environmental influences
- High tensile strength
- High dimensional stability
- Excellent flexibility at low temperatures
- Perfect weldability, with broad welding window
- Durable
- Recyclable

Application

- Loose laid on inverted roofs and under heavy protection
- Mechanically fixed on UV exposed roofs.
- For non-accessible roofs with a sloop (>1%) including utility areas
- On substrates in concrete, steel-deck, timber or wood datives boards
- On insulation boards: complying with supplier's technical documentation & local regulations
- On new roof or in reproofing
- On premises with low, medium or high hygrometry

Application details – Loose laid on inverted roofs

Monarplan is loose laid over the concrete substrate previously protected with a geotextile.

On inverted roof application Monarplan is protected with a second geotextile before the installation of XPS polystyrene insulation board. The direct contact between Monarplan and polystyrene is not allowed.

Overlapping sheets are welded together to form a homogenous lap using hot air equipment.

The welding is optimal between 400-500 °C and at a welding speed of 1,5-2,5 m/min.

Delivery form

Membranes are delivered into rolls, which are laid on wood pallets and covered by a white tarpaulin.

Storage and transport

Monarplan must be stored in a horizontal position and protected against mechanical damage and from direct sunlight, rain and snow.

Monarplan should be transported in covered transporting means and stored in original closed packaging. The recommended storage temperature is between 0 and 30 degrees centigrade.

Product identification

Label outside on the roll and on every pallet tarpaulin, with all necessary information about product and the production numbers.