

TECHNICAL DATA – BREATHERS Underlay for discontinued roofing – EN 13859-1 / Underlay for wall – EN13859-2

Technical data	Unit		MONARPERM LIGHT	MONARPERM 500	MONARPERM 600	MONARPERM 700	MONARPERM Plus	MONARPERM TOP	MONARPERM REFLEX
Size*	m		1,5x50	1,5x50	1,5x50	1,5x50	1,5x50	1,5x50	1,5x50
Weight	g/m²		90	100	115	132	140	190	170
Tensile strength	N/50 mm	MD	155	190	190	240	245	335	280
		CD	145	140	185	180	260	335	250
Elongation	%	MD	85	85	95	80	100	100	80
		CD	90	100	115	90	120	110	100
Nail tear resistance	N	MD	115	105	145	120	195	245	200
		CD	130	110	140	140	185	245	200
Dimensional stability	%	MD	< 2	< 2	1,5	< 2	< 2	< 2	< 2
		CD	< 2	< 2	1,5	< 2	< 2	< 2	< 2
Cold bend	°C		-40	-40	-40	-40	-40	-40	-40
Sd value	m		0,04	0,04	0,04	0,02	0,04	0,02	0,02
Water tightness	Class		W1	W1	W1	W1	W1	W1	W1
Fire classification	Class		F	F	F	F	F	F	F
Reflectivity									60%
Emissivity									40%
Ageing after EN 1297 & EN 1296									
Tensile strength	N/50 mm	MD		140	150	220	225	300	250
		CD		110	155	160	240	310	220
Elongation	%	MD		65	70	45	70	70	70
		CD		55	75	45	70	70	70
Water tightness	Class		W1	W1	W1	W1	W1	W1	W1

* Some of the products are available in different sizes. Please contact Monarflex to further information.

TECHNICAL DATA – TIGHT UNDERLAY Underlay for discontinued roofing – EN 13859-1

Technical data	Unit		MONARFLEX Protect IF	MONARFOL 100	MONARFOL 145	MONARTILE Supa-R	ICOPAL Def'X Multi	MONARFOL Super
Size	m		1,5x50	1,5x50	1,5x50	1,5x50	1,5x50	1,5x50
Weight	g/m²		125	95	150	150	200	320
Tensile strength	N/50 mm	MD	160	210	500	500	500	550
		CD	150	190	400	400	390	600
Elongation	%	MD	80	15	18	18	15	20
		CD	85	15	22	22	15	15
Nail tear resistance	N	MD	130	180	410	410	400	300
		CD	140	140	330	330	450	230
Dimensional stability	%	MD	< 2	-2	< 2	< 2	< 2	-0,5
		CD	< 2	-0,5	< 2	< 2	< 2	-0,5
Temperature range	°C		-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80	-40 to +80
Sd value	m		30	30	50	40	11	150
Water tightness	Class		W1	W1	W1	W1	W1	W1
Fire classification	Class		F	F	F	F	F	F
Ageing after EN 1297 & EN 1297								
Tensile strength	N/50 mm	MD	135	190	490	420	450	450
		CD	130	195	370	450	400	500
Elongation	%	MD	55	15	17	17	12	15
		CD	60	15	21	21	12	15
Water tightness	Class		W1	W1	W1	W1	W1	W1

MONARFLEX ACCESSORIES – ROOF AND WALL SYSTEM

Butyl tape

The Butyl tape is a permanently flexible double sided tape for easy joining of side and end laps in membranes as well as to secure detailing at interfaces.

Monotape

Monotape is a double sided acrylic tape for joining laps in underlay to form a continuous vapour open underlay

Monosleeve

Monosleeve is a flexible sleeve designed to seal service penetrations through the rubber sleeve fits tightly around the pipe or cable whilst the self-adhesive base forms an airtight seal with the membrane.

IcoAir®

IcoAir® is a ventilation outlet to ensure the roof space from the occurrence of excessive condensation. It can be installed from the outside as well as from the inside of the roof space.

MONARFLEX

Monarflex has for many years been one of the worlds leading manufacturers of polyethylene reinforced and non-reinforced sheeting and breather membranes used in the building and construction industry. As part of the Icopal Group, Monarflex belongs to a professional family with a strong presence throughout Europe. Icopal has 35 production sites using state of the art production technology and 95 offices with committed teams holding unique track records in innovation and customer satisfactions. The benefit for you as a customer is that you can always seek guidance and information in your own language from an Icopal office nearby. We are able to minimize delivery time through local stocking in your area.

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S L O V A K I A

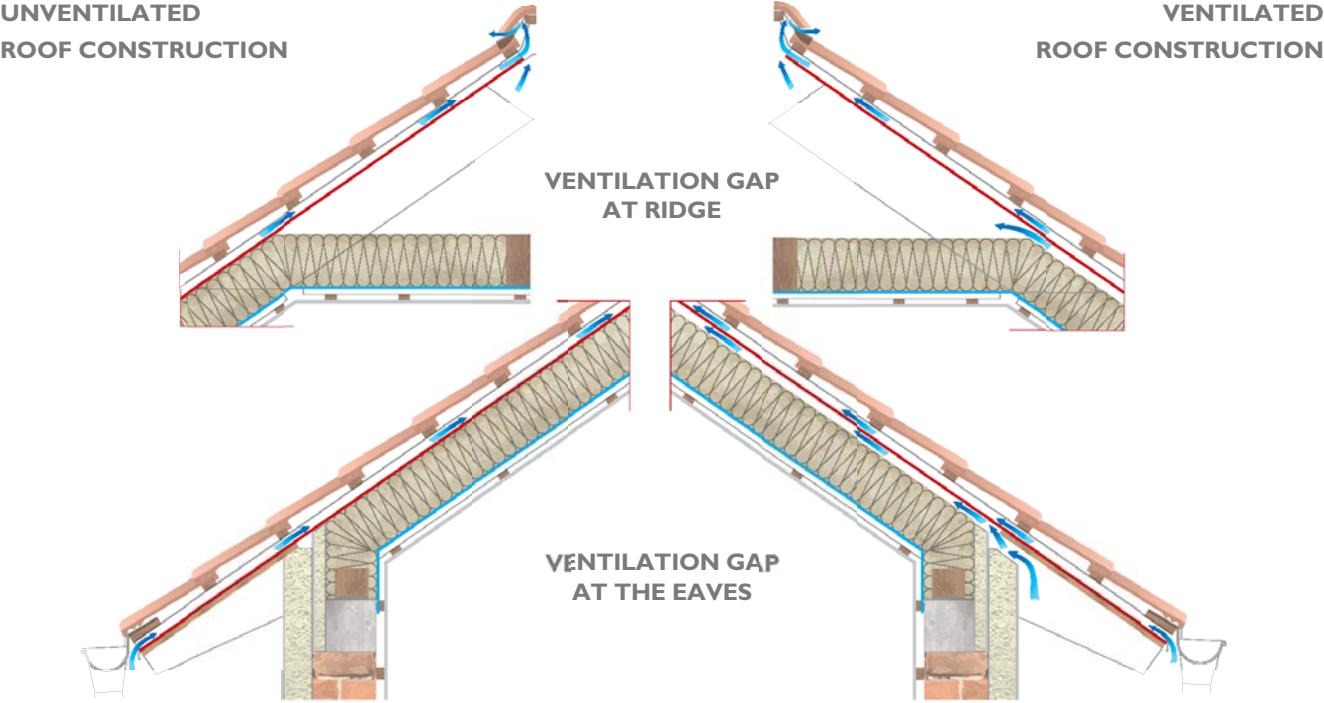
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VENTILATION OF UNDERLAY

UNVENTILATED ROOF CONSTRUCTION

VENTILATED ROOF CONSTRUCTION



PRODUCT SECTOR GUIDE

It is very important to choose the right product for a specific building project.

If the product does not fulfill the requirements or your expectations, it can have enormous economic consequences.

The following conditions should always be evaluated carefully before choosing a product:

- Type of construction and roof pitch angle
- Installation method
- Type of roofing material
- Type of work to be conducted (e.g. new build or renovation of a house)

Main construction types		Installation method	Type of covering material	Type of work New built	Type of work Renovation
	Cold roof system with traditional ventilation needed	Over rafters	Clay tiles Concrete tiles Slates Woods	Monarflex Protect IF Monarfol 100 Monarfol 145 Plus DEF'x Multi	Monarfol 145 Plus DEF'x Multi
	Cold roof system with ventilation needed	Directly on hard boarded wood		Monarflex Protect IF DEF'x Multi	Monarflex Protect IF DEF'x Multi
	Warm roof system with no ventilation needed	Over rafters directly on insulation		Monarperm 500 Monarperm 600 Monarperm 700 Monarperm Plus Monarperm Top Monarperm Reflex+	Monarperm 500 Monarperm 600 Monarperm 700 Monarperm Plus Monarperm Top Monarperm Reflex+
	Warm roof system with no ventilation needed	Directly on hard boarded wood		Monarperm 700 Monarperm Plus Monarperm Top Monarperm Reflex+	Monarperm 700 Monarperm Plus Monarperm Top Monarperm Reflex+
	Warm roof system with ventilation	Over rafters		Monarperm 600 Monarperm 700 Monarperm Plus Monarperm Top Monarperm Reflex+	Monarperm 500 Monarperm 600 Monarperm Reflex+
	Warm roof system with ventilation	Directly on hard boarded wood		Monarperm 700 Monarperm Plus Monarperm Top	Monarperm 700 Monarperm Plus Monarperm Top
	Warm roof system with ventilation	Directly on hard boarded wood	Singles Slates Woods	Monarflex Protect IF Monarperm 700 Monarperm Plus Monarperm Top	Monarflex Protect IF Monarperm 700 Monarperm Plus Monarperm Top
	Wall system no ventilation needed	Directly on hard boarded wood or directly on insulation	Stones Tiles Slates Woods	Monarperm Light Monarperm 500 Monarperm 600	

The table in this folder can be used as a guideline in choosing the right roofing underlay for the right job, but it does not replace exact calculations.

MONARFLEX PITCHED ROOF AND WALL MEMBRANES



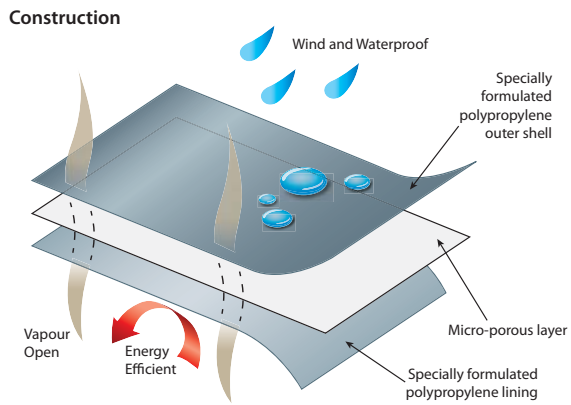
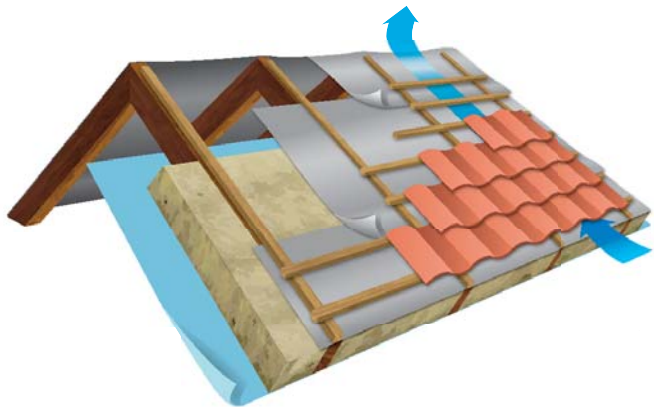
Monarflex offers the perfect solution for all types of roofing systems.

UNVENTILATED ROOF CONSTRUCTION

VAPOUR PERMEABLE UNDERLAY SOLUTION

The vapour permeable roofing underlay is also called the breathable roof. This type of underlay can be used for roofs with a pitch of more than 20°.

The feature of this roof construction is that no ventilation gap needs to be built-in meaning no cold air will cool the insulation material down and thereby no insulation value is lost. This means that Monarperm vapour permeable roofing underlay is especially suitable for pitch roof constructions where the room in the roof will be used for living in, which is referred to as a warm pitch roof.

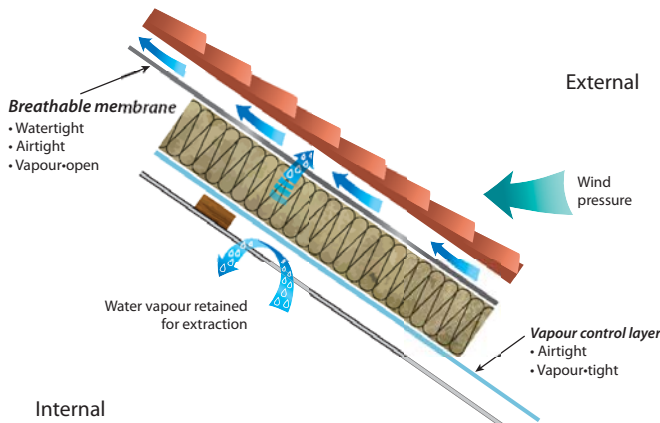


Monarperm breathers has been designed specifically to meet the performance requirements for a pitched roof underlay: it consists of a highly vapour-open film bonded between two layers of nonwoven polypropylene which give the membrane its strength and water resistance.

Airtight: Monarperm underlay helps prevent the displacement by the wind of roofing tiles and slates.

Watertight: Any wind-driven rain or snow which penetrates the tiles or slates is stopped by the Monarperm underlay and drains safely down to gutters.

Vapour open: Monarperm breathers allows water vapour arising from the occupied space to diffuse safely to atmosphere; it prevents the build up of high concentrations of water vapour, so reducing the likelihood of harmful condensation.



TYPE OF PRODUCTS:

- Monarperm Light
- Monarperm 500
- Monarperm 600
- Monarperm 700
- Monarperm Plus
- Monarperm Top
- Monarperm Reflex

Benefit of Monarperm vapour permeable membranes

- Suitable for in both warm and cold pitched roof construction in both new-build and refurbishment
- Remain watertight and do not require traditional ventilation
- Allow water vapour to pass easily into the tile area, reducing moisture levels within the roof and eliminating the risk of condensation
- UV stable – can be exposed on site for up to 3 months
- Suitable for hard boarded roofs and rafter construction
- Monarperm Top and Reflex with self adhesive tape
- Monarperm Reflex has an UV stable aluminum layer and can be used as a radiant barrier underlay
- Can be installed as a wind barrier for walls and available in different widths and lengths

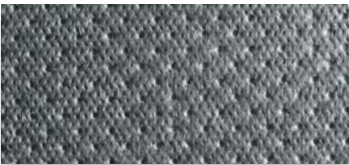
MONARFLEX PITCHED ROOF AND WALL MEMBRANES



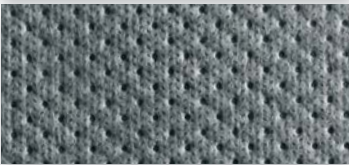
WALL MEMBRANE

BREATHER UNDERLAY

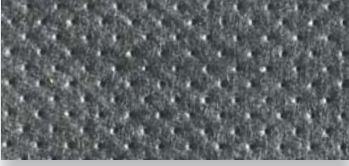
Monarperm Light



Monarperm 500



Monarperm 600



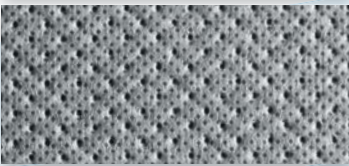
Monarperm 700



Monarperm Plus



Monarperm Top

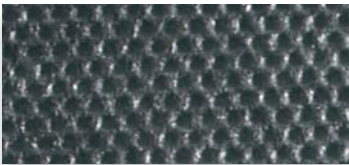


Monarperm Reflex



TIGHT UNDERLAY

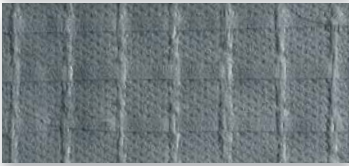
Monarflex Protect IF



Monarfol I45 Plus



Monartile Supa-R



Monarfol Super



Icopal DEF'X Multi

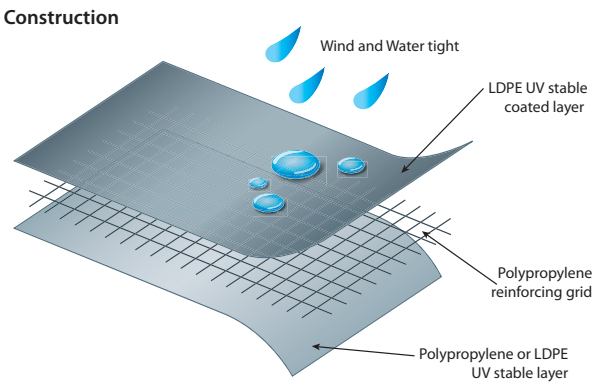
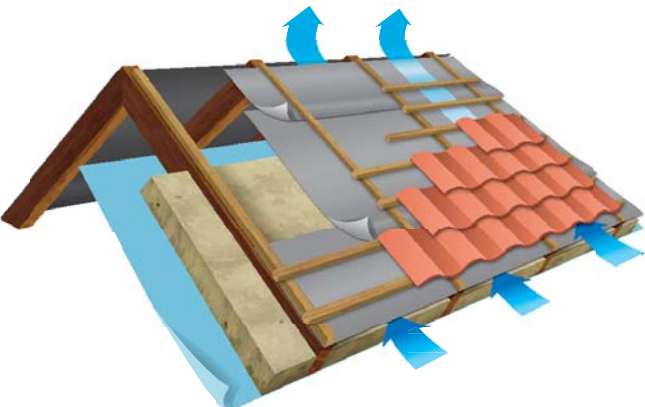


Monarfol I100



CLASSIC UNDERLAY SOLUTION

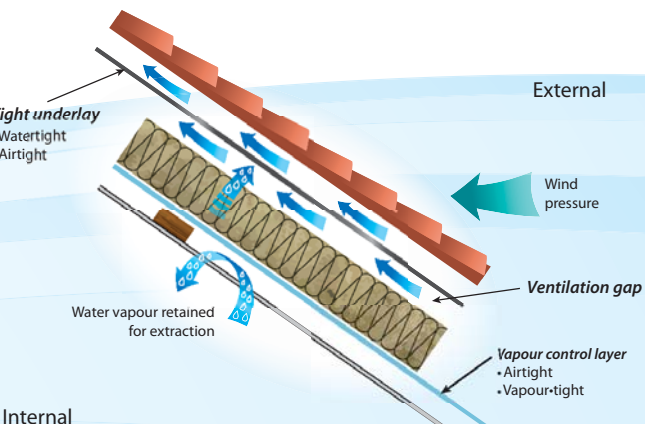
The ventilated roof is the traditional construction method for roof with a pitch angle of more than 15°. The ventilated roof can be either a warm roof or a cold roof. In a warm roof thermal insulation follows the rafter line whereas in a cold roof thermal insulation is installed horizontally at sealing level. In any case a ventilation gap between a vapour tight Monarflex roofing underlay and the insulation is needed. This ventilation gap will ensure a free and continuous ventilation to avoid harmful condensation built-up in the insulation material.



Monarflex underlay has been designed to meet the performance requirements for a pitched roof underlay: they consist of two or three layers of lamination. The 3 layers products always consist of reinforcing grids which give the strength of membrane. The underlays are aging resistant to UV and IR.

Airtight: Monarflex underlay helps prevent the displacement by the wind of roofing tiles and slates.

Watertight: Any wind-driven rain or snow which penetrates the tiles or slates is stopped by the Monarflex underlay and drains safely down to gutters.



TYPE OF PRODUCTS:

- Monarflex Protect IF
- Monarfol I100
- Monarfol I45 plus
- Monartile Supa-R
- Monarfol Super
- Def'X Multi

Benefit of Monarflex tight underlay's

- Very strong with levels of tear and puncture resistance.
- Durable and watertight - efficient protection for the lifetime of the exterior roof.
- UV resistant and stable over wide temperature range
- UV resistant time is maximum 3 months
- Lightweight easy to handle rolls