

**MINERAL PLASTER TECHNOLOGY**

**27 Neilpark Drive  
East Tamaki  
Auckland  
Ph. +64 9 271 3504 fax +64 9 271  
3505  
[www.putz-technik.co.nz](http://www.putz-technik.co.nz)**

December 2012

Page | 0

## MINERAL PLASTER TECHNOLOGY

### CONTENTS

MINERAL PLASTER TECHNOLOGY	page
Introduction	2
Breathability and Insulation	4
Plaster Finishes - finishing renders and textures	7
Internal Plastering – building biology and plaster	8
 SUBSTRATES	
Application Guide	
Solution 200 – Mineral Plaster on Concrete Block	11
Solution 300 – Mineral Plaster on Polystyrene, Brick, Brick Veneer, Light Weight Concrete, Aerated Concrete, Block Work, Hardies and Hieble	
Solution 350 – Mineral Plaster on 7.5mm Fibre-Cement Sheet,	
Solution 400 – Whiteset Internal Renders on Cementitious and Gib Substrates	
Solution 402 – Whiteset Finish	
Solution 600 – Insulating Plaster	
 PRODUCTS	
Product Guide	12
Technical Information Sheets	
HEIDELBERGER PT 100 – Adobe Finishing Render	13
HEIDELBERGER PT 101 – Trowell Finish Render	15
HEIDELBERGER PT 102 – Medium Sponge Finish Render	17
HEIDELBERGER PT 103 – Scratch Finish	19
HEIDELBERGER PT 104 – Drag Finish	20
HEIDELBERGER PT 200 – Basecoat Render	21
HEIDELBERGER PT 300 – Adhesive Render for Polystyrene, Brick, Brick Veneer, Light Weight Concrete, Aerated Concrete, Block Work, Hardies and Hieble	23
HEIDELBERGER PT 350 – Skimcoat Render for Fibre-cement Sheeting	25
HEIDELBERGER PT 351 – Jointing Compound	27
HEIDELBERGER PT 400, PT 402, PT 451 – Whiteset Internal Renders	29
HEIDELBERGER PT 600 – Insulating Render	32
FIBREGLASS MESH	35
MESH APPLICATION GUIDE	37
MESH BEADS	38

## MINERAL PLASTER TECHNOLOGY

### INTRODUCTION

Putz-Technik is a manufacturer of Mineral Renders made from all natural materials & based on cement, lime & sands produced here in New Zealand. Our products are premixed & bagged for your convenience.

Putz-technik products can be used on most substrates including polystyrene and all masonry surfaces such as concrete, brick, clay stone and fibrous cement sheeting (such as Eterpan, Hardibacker etc).

Mineral renders have been developed in conjunction with machine pumps which are used to lay up the plaster (through a spray hose). Mineral renders can also be laid up by hand. Simply mix with clean water.

Mineral (natural) additives have been incorporated into the renders according to a German formula & adapted to New Zealand conditions for improved application & performance.

### WHY MINERAL?

For as long as Man has been building he has used mineral plasters. Lime plasters go back about 8,000 years and gypsum mortars were used by the Babylonians about 6,000 years ago. Hydraulic plasters made from possolans (powdered volcanic ash) have probably been known for over 3 millennia and were used in large amounts by the ancient Phoenicians, Greeks and Romans.

This ancient know-how, with German technology & the invention of cement, has produced the machine-based mineral plaster technology of today, which is favoured for its look of warmth & permanence as well as for its performance as a protection against the weather.

Based on their binder, mineral plasters are traditionally classified as lime plasters, lime-cement plasters, cement plasters, gypsum and gypsum-lime plasters. The European standard DIN 18550 defines a plaster as a single or multi layer coating of plaster mortars or coating materials which is applied to walls and ceilings and only obtains its ultimate properties when it hardens on the construction element. DIN 18550 also defines the different mortar groups and the technical requirements to which they are subject.

For exterior walls, lime-cement plasters are mainly used, since they are subject to extreme requirements and must perform the following functions:

- Provide the façade with an optically attractive surface finish
- Protect covered wall areas and undercoats against dampness and weathering.

To reach their required physical functions over long periods, mineral façade plasters must have the following properties in the hardened state:

- Good adhesion to the substrate (adequate tensile adhesion strength)
- Low water absorption and a good water repellent effect (i.e. a low water absorption coefficient)
- Good drying characteristics (good water vapour permeability, low Sd value)
- Low susceptibility to cracking (good relaxation properties)
- The modulus of elasticity of the mineral coating should be lower than the modulus of elasticity of the layers beneath it.

These requirements are met in an exemplary manner by mineral plasters produced as prefabricated dry mix mortars. In addition, finishing plasters can nowadays be pigmented in white or in light pastel colours and used to apply the final surface finish without any additional painting being necessary.

Mineral Plaster Technology:

- Eliminates variations between mixes & associated problems.
- Is breathing active. Over time, the activity of trapped water vapour has a deteriorating effect on the coatings which trap it. Putz-Technik Mineral Plasters however allow the free movement of water vapour at all times while at the same time keeping out the weather i.e. liquid water.
- Is non-toxic & environmentally safe. Putz-technik products are all made from natural materials & are environmentally safe.
- Saves money, time & labour & makes for a cleaner, more efficient plastering operation as well as providing a superior product.
- Has set the standard for solid plastering in Europe for the last 30 years.

Putz-Technik mineral renders can be ordered pre-coloured (with oxide).

Locally produced Putz-Technik mineral renders have been fully tested in German laboratories & comply to New Zealand building standards. Putz-technik guarantees all its plaster products for fifteen years providing storage & application specifications have been met.

For further information regarding Mineral Plastering Technology & the products available through Putz-technik or contractors using this technology, please contact us at the number below. Demonstrations are available on request.

## BREATHABILITY AND INSULATION

The cement and lime products used in the manufacture of mineral plasters are derived from limestone. The process by which these ingredients are produced involves the removal of water from the raw material so that when water is again added (to the plaster) these products, simply speaking, revert to their original rock-like nature. The other main ingredient of mineral plasters is sand. The very nature of pre-mixing mineral plasters in the factory allows for the selection and grouping of sands and aggregates of various grades and types in order to attain the ideal matrix required to suit the specific purpose of the plaster. All natural additives are incorporated into this basic plaster recipe according to the requirements of the plaster, which improve flexibility, water repellency, adhesion, strength, workability, the promotion of the hydration process etc. Putz-technik does not use any ingredient that will compromise the breathability (Water Vapour Diffusion Equivalent) of its products.

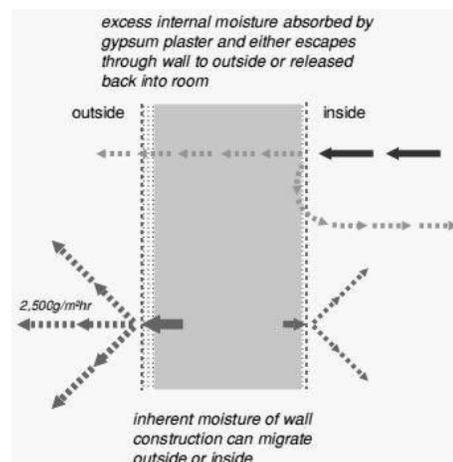
Breathability through the profile of any façade is essential for:

1. Durability
2. Insulation

Just as in the case of human skin, the breathability of plasters (or paint) is a function of pore structure. Likewise, Putz-technik mineral plasters will repel liquid (water) while maintaining breathability.

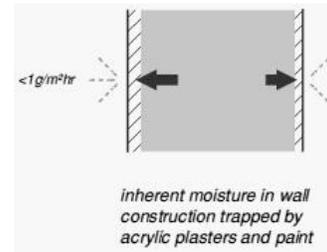
### Durability

In some form or other, water is everywhere. All common wall construction materials, including kiln dried timber, contain and can absorb moisture. Air within wall cavities contains moisture. Water vapour will invariably migrate to where the temperature (air pressure) is lowest. In a wall, given that internal room temperatures are often higher than external temperatures, moisture will tend to migrate toward the external surface of the wall and, if possible, escape to the external environment. The action of such moisture, if trapped by a non-breathable membrane (e.g. acrylic paint or plaster) will, over time and changing internal/external temperature gradients, have a damaging effect on the façade and wall construction materials.



Such damage is likely to include: paint blistering, cracking, delamination, dry rot etc. By allowing free movement of water vapour the durability, therefore, of both the cladding and construction material is significantly increased.

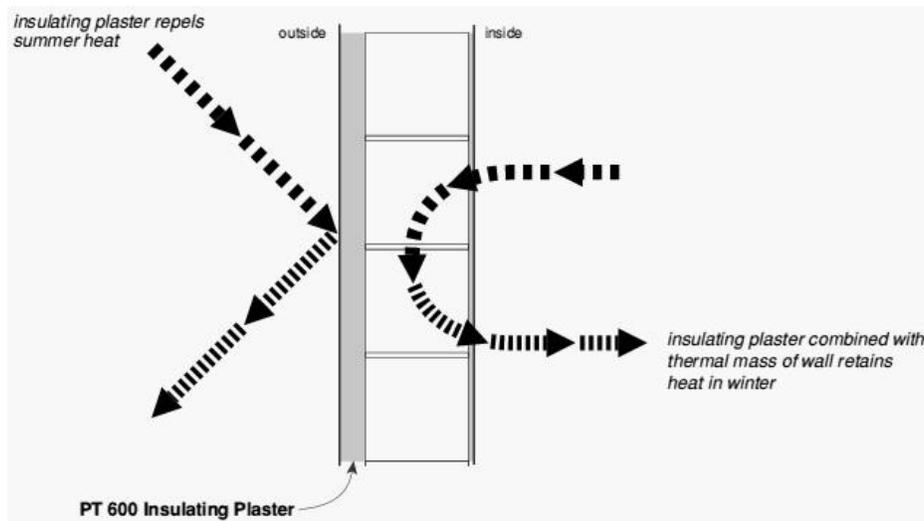
Acrylic plasters and paints were intended to solve problems of adhesion and flexibility. They are, however, as time has proved, subject to a natural process of weathering which affects their flexibility, and hence, the life-span of such products. The adhesion of acrylic paints and plasters is in turn compromised due to their increasing brittleness and because of the moisture related problems described above.



Mineral plasters do not lose flexibility over time. For this reason, and because they are gas permeable, adhesion is not compromised in this way. Mineral plasters can generally be expected to last as long and as well as the materials used in the wall construction. Silicone water soluble paints can be expected to endure significantly longer than non-breathable paints.

## Insulation

If a building were to be renovated by plastering with mineral plasters on non-breathable painted walls inside and out, the average room temperature could be expected to rise by 2-4<sup>B</sup>C given standardized conditions (heating etc). Without the influence of non-breathable paints/plasters the average temperature rise would be further increased. It can be seen, then that plastering has an inherent insulation value, with an obvious saving of energy costs. Heat will naturally dissipate (i.e. move towards the cold). Heat will be more quickly dissipated in conditions of greater humidity (for example, if one's clothes are damp). Locked-in dampness occurring in the construction of a wall will therefore reduce the average temperature of a room. Likewise, high room humidity will accelerate heat loss from the body. Mineral plaster technology is able to achieve a general lowering of both room and wall humidity by allowing a natural avenue of escape for moisture from the room and wall environments.



This is achieved by the use of gypsum plaster (see INTERNAL PLASTERING) on internal walls, and lime-cement plasters externally. To this end, Putz-technik also specifies the use of a breathable paint (or masonry water repellent) and breathable building paper where it is required.

Where required as a specific construction element to a wall, insulation should always be incorporated at the external surface of the wall. Putz-technik manufactures Heidelberger PT 600 Insulating Render for walls that require added insulation (typically concrete block). By insulating at the external surface of the wall the thermal mass of concrete is fully utilized. Thus, in winter, heat absorbed by the wall from internal heating will be reflected back into the room. Conversely, in summer, the wall will remain cool. By insulating at the inside surface of the wall this effect is negated. Heidelberger PT 600 Insulating Render utilizes the properties of natural perlite as its insulating component.

For further information on breathability or insulation see WEATHERPROOFING and INTERNAL PLASTERING or contact Putz-technik .

## MINERAL PLASTER TECHNOLOGY

### MINERAL PLASTER FINISHES

#### Finishing Renders and Textures

The following Heidelberger finishing renders are available from Putz-technik:

#### External

**PT100** Adobe Render, a fine aggregate plaster suitable for adobe finishes.

**PT101** Trowel Finish, a medium aggregate plaster suitable as a plastic float finish or spray texture.

**PT102** Sponge Finish, a medium/coarse aggregate plaster suitable as a sponge finish or spray texture.

**PT103** Scratch Finish, available in 2mm or 3mm.

**PT104** Drag Finish, available in 2mm or 3mm.

#### Internal

**PT400** Whiteset Render, a gypsum-lime render suitable for a wide range of finishes, from a straight polished finish to undulating sponged.

**PT402** Whiteset Finishing Render, a gypsum-lime render for use where a high level polished finish is required.

## MINERAL PLASTER TECHNOLOGY

### INTERNAL PLASTERING

#### Building Biology and Plaster

The environments of our houses and workplace have a major influence on our personal comfort and health. We feel and perform best when comfortable.

Generally, climatic conditions of an environment are comfortable if the heat generated by our bodies maintains a balance with the heat lost at the clothed and unclothed surfaces of our bodies without an excessive amount of perspiration. This balance is dependent upon:

- air temperature
- relative humidity
- surface temperature of the surrounding area and
- airflow

Other factors can include:

- Moisture in the wall construction;
- Temperature gradients within the room;
- Diathermancy of glazed areas; (Ceramic tiles);
- Air quality (pollution through dust and unpleasant odours). The latter can originate from building materials, particularly if these are damp.
- Ventilation and airflow through free convection.
- Radioactivity of building materials.
- Ionisation of air and electrical fields in room.
- Heating and heating systems.
- Lighting.

Physiological research has shown that the average temperature of the air in a room in relation to the temperature of the walls should attain the following relationship to be comfortable for us. At an air temperature of 18° C, walls should be at approximately the same temperature. When the air temperature is higher the walls should be cooler, and vice-versa.

## Important: Pores

Building materials can be assessed for their comfort. Those that have low porosity are known to be less satisfactory than porous materials as pore mechanism and its function as a climatic regulator is of great significance for well-being in a room.

Certain characteristics of plaster, for example, its fire-retardant effect, sound absorbent characteristics, aesthetic appearance of the surface and the excellence of the material for dry expansion are well known. Furthermore, the controlling effect on the room's air condition by plaster has been known since antiquity.

This effect requires that the plaster be permeable to water vapour and able therefore to make a contribution to the moisture balance between room air and surrounding walls and ceilings. This demand applies not just to rooms with normal housing activities and a moderate development of moisture but equally to rooms in which a temporarily high moisture accumulation can be assumed, for example, bedrooms.

In the case of a room with damp walls (low porosity), such walls have a high caloric conductivity and therefore a low surface temperature. Furthermore, the temperature in the interior is lowered through the latent heat of water. Through this, a strong temperature drop develops from the inner room to the walls which is felt as uncomfortable and encourages the development of coughs, sneezes and rheumatism. Intense temperature gradients also appear in the microclimate between skin surface and clothing if the clothing has absorbed moisture from the room air.

Pores originate in a plaster in the following way: More water is added to plaster than is necessary at the mixing stage for the formation of the dihydrate. This surplus of mixing water leaves the plaster building material before, during and after setting. Thereby a system of hollow spaces develops when the plaster has still not hardened and which are then crystallised throughout. This consists of spherical hollow spaces and fine channels between these hollow spaces.

These hollow spaces lower the density of the plaster. Whereas the true density of the dihydrate is approximately  $2300 \text{ kg/m}^3$ , the bulk density of the hardened plaster fluctuates between approximately  $1,400$  and  $600 \text{ kg/m}^3$  depending on the mixed in water content (water-plaster factor). This means that 40—75% of the gypsum plaster body consists of hollow spaces. The fluctuation in overall density can be even greater in plaster building materials depending on the mixed in water content and the type of aggregate.

## Absorption of water

Gypsum plaster building materials are virtually completely dry in normal room air conditions. When left to function naturally (i.e. not covered with acrylic paint etc) the pores in the plaster are able to absorb water by way of capillary condensation which is based on the lowering of vapour pressure in the capillary pores. Suction pressure of gypsum plaster is determined as follows:

At an average volume weight of just  $1400 \text{ kg/m}^3$ , the absorption of humidity reaches 30 percent by volume after 24 hours of water storage. Plaster mortar at  $800\text{—}1000 \text{ kg/m}^3$  volume weight is assigned 40—60 percent by volume. From this it can be concluded, for example, that 1cm thick gypsum plaster in a 4 by 6m room, 2.5m high, can absorb 234 litres of water in <24 hours, under consideration of a window and door area of an approximate total of  $6\text{m}^2$  and a degree of absorption of humidity of 30 percent by volume.

Thus, during periods of high room humidity the plaster is able to absorb and retain a significant quantity of water. As the room atmosphere changes research has demonstrated that the plaster is able to rapidly release the retained water as water vapour. It is in this way that gypsum plastered walls contribute significantly to maintaining ideal conditions as described above.

## Delivery of moisture

The ability to absorb and accumulate moisture will only be a positive feature if supplemented by the capacity to deliver up this moisture again in accordance with changes in external conditions. Such a delivery of moisture should generally take place quickly and should really be as complete as possible. As proven by research, delivery of moisture by gypsum plaster in constant air conditions takes place very quickly, particularly when the same approximate average air humidity is maintained.

With frequent changes between high and normal air humidity, gypsum plaster delivers its absorbed condensed water completely (or almost completely) in times of low air humidity and after moderate humidity condensation, and extensively after high condensation. A lasting increase in humidity of the gypsum plaster is almost undetectable after such a changing demand with a moderate accumulation of condensate water and only to a very limited extent with a high accumulation.

Such behaviour as described for plaster does not exist in finely pored and lowgrade pored building materials.

## Plaster is kind to the skin

It is not by chance that the handler of gypsum plaster does not need gloves nor any breathing apparatus to apply plaster. Plaster has the same pH value as human skin. Also, its water vapour absorption properties are identical to those of human skin which is also why plaster has been used in bone fractures to support the relevant body part for years.

Gypsum plaster contains nothing which can cause allergic reactions or irritation; neither does it produce a smell or toxic gases.

## MINERAL PLASTER TECHNOLOGY

### Application guide

Putz-technik offers the following Heidelberger plastering solutions for the New Zealand construction environment. For full application details refer to the individual system data sheets and for specific design ph 09 271 3504

	Specify	Nominal thickness	Applications
<b>EXTERIOR SUBSTRATES</b>			
<b>SOLUTION 200</b>			
Masonry	PT200 & finish	10mm	All masonry surfaces
	PT200 (1 coat sponged)	10mm	Landscape walls
Lightweight concrete	PT200 & finish	10mm	All AAC surfaces eg: Hebel, Thermalite
Lath/mesh	lath/PT 200 & finish	21mm	Traditional 3 coat work over rigid and non rigid backing
<b>SOLUTION 300</b>			
Polystyrene block or sheet	PT 300/PT fiberglass mesh & finish	8mm	Insulform, Superform type surfaces, sheet clad structures and decorative EPS
Precast concrete/painted surfaces	PT 300/PT 200 & finish	5mm as required	Tilt slab, cast in situ concrete Straightening required to precast surfaces
<b>SOLUTION 350</b>			
Fibre-cement sheet	PT351/70mm FGM/PT350 & finish	6mm	Direct bond to fibre-cement sheets
<b>INTERIOR SUBSTRATES</b>			
<b>SOLUTION 400</b>			
Block/Gib/lath/fibre-cement sheet	PT400	as required	Traditional gypsum whiteset
<b>SOLUTION 402</b>			
Block/Gib/lath/fibre-cement sheet	PT402 or PT400/PT402	as required	Gypsum whiteset, high level polished finish
<b>INSULATING</b>			
<b>SOLUTION 600</b>			
Masonry	PT600 & finish	as required	Breathable insulating plaster
Fibre-cement sheet	Lath/PT600 & finish	as required	

## MINERAL PLASTER TECHNOLOGY

### Product Guide

Putz-technik have developed the following products for the New Zealand construction environment. For full application details refer to the technical information sheets and for specific design phone 09 271 3504.

Name	Description
PT 100	adobe finish for exterior base or mesh coated surfaces, min 1mm.
PT 101	a plastic trowel finish over all base or mesh coated surfaces or directly over 7.5mm fibre-cement sheet, min 1mm. Also suitable as a texture spray.
PT 102	a medium sponge finish for exterior base or mesh coated surfaces, min 1.5mm. Also suitable as a texture spray.
PT 103	a 2 or 3mm scratch finish.
PT 104	a 2 or 3mm drag finish.
PT 200	a robust render suitable as a basecoat on concrete block or AAC, 5—20mm.
PT 300	a general purpose adhesive render used as a basecoat over polystyrene (EPS) and smooth surfaces such as precast and tiltslab or painted surfaces, min 5mm on polystyrene. Can be used to bond polystyrene sheets to all common good bearing wall backgrounds.
PT 350	a bonding and straightening plaster used in thin coat plaster solutions for min 7.5mm fibre-cement sheet. Retarded hydration allows this to be used as a skim coat over high suction substrates, min 1mm.
PT 351	a jointing compound used with rebated 7.5mm fibre-cement sheets.
PT 400	a gypsum/lime whiteset render for internal walls and ceilings (concrete block, AAC, Gib Board, bre-cement sheet).
PT 402	a gypsum/lime whiteset render for high level polished internal finishing
PT 600	an insulating plaster for blockwork and fibre-cement sheet.

A range of plaster accessories including beads, fibreglass mesh and tools is also available.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Adobe Finishing Render HEIDELBERGER PT 100

PT 100 Adobe Finishing Render is a factory mixed dry plaster following European standard DIN 18550 and DIN 18555 and is suitable for use as a topcoat.

PT 100 Adobe Finishing Render can be applied to exterior surfaces as a topcoat and can be used on all masonry substrates (walls and ceilings).

PT 100 is a finishing render and is normally used as the final coat on top of a basecoat. For basecoat details, see PT 200, PT 300, PT 320, PT 325 or PT 350 Technical Information sheets. PT 100 has been specifically formulated as a fine sponge finish and is ideally suited where an adobe or undulating finish is required.

#### Preparation

The substrate must be of a sound nature, free from dust and loose particles, form release oils and other contaminants which could affect adhesion and bonding strengths of subsequent coatings.

#### Application

With excellent adhesion and having a favourable compression/flexural strength ratio, PT 100 is suitable for commercial plastering machines. PT 100 can, however, also be applied manually when mixed by drill or machine (e.g. M-Tec D20).

PT 100 can be applied from 1mm to 5mm thickness.

During setting the applied areas may be screeded, floated, sponged or brushed with water to achieve the required finish. PT 100 can be easily worked to any desired effect, from bold rustic and undulating textures to smooth sponge finishes. For a smooth sponge finish it may, depending on the straightness of the basecoat, be necessary to apply two coats of PT 100.

#### Coverage

Depending on the substrate a 25kg bag of PT 100 yields approximately 7 square metres at 2mm thickness.

## Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

PT 100 should not be applied to wet or green cementitious substrates before a reasonable curing/drying period.

Paint should not be applied to mineral plasters until sufficiently hardened and dried. If in doubt contact Putz-technik.

## Technical

PT 100 is manufactured using selected grades of sand, lime, cement and mineral additives. Sand particle size range is 0—1.0mm.

PT 100 has high water vapour permeability (breathing activity).

Where a re resistance rating is required please contact Putz-technik.

Water demand	600
(wf)	(0.30)
Air-Entrainment vol %	16.6
Water retention %	95.4
Flexural strength N/mm <sup>2</sup>	1.00
Compressive strength N/mm <sup>2</sup>	2.3
Bond strength N/mm <sup>2</sup>	0.45

## Storage

PT 100 is packaged in 25kg paper bags, with 40 bags (1 tonne) per pallet.

PT 100 can be stored in a dry place for up to 6 months.

## Quality Control

PT 100 is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Trowel Finish Render HEIDELBERGER PT 101

PT 101 Trowel Finish Render is a factory mixed dry plaster following European standard DIN 18550 and DIN 18555 and is suitable for use as a topcoat.

PT 101 can be applied to exterior surfaces as a topcoat and can be used on all masonry substrates including tilt slab, fibre-cement sheeting and Gib board. When using PT 101 directly onto smooth concrete (eg tilt slab) or onto Gib board please contact Putz-technik for application specifications.

#### Preparation

PT 101 is a finishing render and is normally used as a final coat either on top of a basecoat or directly onto 7.5mm bre-cement sheet. For basecoat details, see PT 200, PT 300, PT 320, PT 325 or PT 350 Technical Information sheets.

The substrate must be of a sound nature, free from dust and loose particles, form release oils and other contaminants which could affect adhesion and bonding strength of PT 101.

#### Application

With excellent adhesion and having a favourable compression/flexural strength ratio, PT 101 can be applied by hopper gun or commercial plastering machine. PT 101 can, however, also be applied manually when mixed by drill or machine (e.g. M-Tec D20). PT 101 has been specifically formulated for finishing by plastic trowel or by hopper gun.

PT 101 can be applied to a minimum thickness of 1mm.

During setting the applied areas may be screeded, plastic trowel floated (or sponged with water) or sprayed with hopper gun to achieve the required finish.

#### Coverage

Depending on the substrate a 25kg bag of PT 101 yields approximately 7 square metres at 2mm thickness.

## Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

PT 101 should not be applied to wet or green cementitious substrates before a reasonable curing/drying period.

Paint should not be applied to mineral plasters until sufficiently hardened and dried. If in doubt contact Putz-technik.

## Technical

PT 101 is manufactured using selected grades of sand, lime, cement and mineral additives. Sand particle size range is 0—1.0mm.

PT 101 has a high water vapour permeability (breathing activity).

Where a re resistance rating is required please contact Putz-technik.

Water demand	600
(wf)	(0.30)
Air-Entrainment vol %	16.8
Water retention %	95.3
Flexural strength N/mm <sup>2</sup>	1.05
Compressive strength N/mm <sup>2</sup>	2.4
Bond strength N/mm <sup>2</sup>	0.53

## Storage

PT 101 is packaged in 25kg paper bags, with 40 bags (1 tonne) per pallet.

PT 101 can be stored in a dry place for up to 6 months.

## Quality Control

PT 101 is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Sponge Finish Heidelberger PT 102

PT 102 Medium Sponge Finish is a factory mixed dry plaster following European standard DIN 18550 and DIN 18555 and is suitable for use as a topcoat.

PT 102 can be applied to exterior surfaces as a topcoat and can be used on all masonry substrates (walls and ceilings).

PT 102 is a finishing render and is normally used as the final coat on top of a basecoat. For basecoat details, see PT 200, PT 300, PT 320, PT325 or PT 350 Technical Information sheets. PT 102 has been formulated as a medium sponge finish to maintain texture beneath several layers of paint.

#### Preparation

The substrate must be of a sound nature, free from dust and loose particles, form release oils and other contaminants which could affect adhesion and bonding strengths of subsequent coatings.

#### Application

With excellent adhesion and having a favourable compression/flexural strength ratio, PT 102 is suitable for commercial plastering machines. PT 102 can, however, also be applied manually when mixed by drill or machine (e.g. M-Tec D20).

PT 102 can be applied to a minimum thickness of 1-5mm.

During setting the applied areas may be screeded, floated, sponged or brushed with water to achieve the required finish. PT 102 can be easily worked to any desired effect, from bold rustic and undulating textures to smooth sponge finishes.

## Coverage

Depending on the substrate a 25kg bag of PT 102 yields approximately 8 square metres at 2mm thickness.

## Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

PT 102 should not be applied to wet or green cementitious substrates before a reasonable curing/drying period.

Paint should not be applied to mineral plasters until sufficiently hardened and dried. If in doubt contact Putz-technik.

## Technical

PT 102 is manufactured using selected grades of sand, lime, cement and mineral additives. Sand particle size range is 0—1.5mm.

PT 102 has high water vapour permeability (breathing activity).

Where a re resistance rating is required please contact Putz-technik.

Water demand	600
(wf)	(0.30)
Air-Entrainment vol %	16.6
Water retention %	95.2
Flexural strength N/mm <sup>2</sup>	1.04
Compressive strength N/mm <sup>2</sup>	2.6
Bond strength N/mm <sup>2</sup>	0.46

## Storage

PT 102 is packaged in 25kg paper bags, with 40 bags (1 tonne) per pallet.

PT 102 can be stored in a dry place for up to 6 months.

## Quality Control

PT 102 is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.



## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Heidelberger PT 103 (2mm) Drag or Scratch Finish

Contact Putz-technik for information regarding PT 103 Finish



## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### **Heidelberger PT 104 (3mm) Drag or Scratch Finish**

Contact Putz-technik for information regarding PT 104 Finish

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Basecoat Render HEIDELBERGER PT200

PT 200 is a factory mixed machine plaster following European standard DIN 18550 and DIN 18555 and is suitable for use as a basecoat over all masonry substrates including AAC block and panel.

#### Preparation

The substrate must be of a sound nature, free from dust and loose particles, form release oils and other contaminants which could affect adhesion and bonding strengths of subsequent coatings.

Substrates with voids, defects and uneven surfaces do not require special preparation.

In the case fibre-cement sheeting, smooth concrete, painted surfaces and polystyrene a key (e.g. steel wire mesh, PT 300 etc) must be applied prior to the application of PT 200. Contact Putz-technik for specific application details.

#### Application

With excellent adhesion and having a favourable compression/flexural strength ratio, PT 200 is suitable for commercial plastering machines or manual application (drill or machine mixed). PT 200 can be used as a basecoat on rough concrete or concrete block to a minimum thickness of 8mm.

On AAC panel or over areas of known or potential stress such as door and window lintels, dissimilar substrates, panel deflection due to wind loading etc, Putz-technik recommends the use of Fibreglass Mesh breglass reinforcing mesh embedded wet-in-wet in the plaster. Ensure that the breglass mesh is trowelled in such a way that it remains towards the exterior surface of the plaster and that it is overlapped at least 100mm where it is joined.

During setting the applied areas may be screeded, floated and cut. Once the required straightness and surface has been achieved, and following sufficient drying time, further coats of PT 200 or the desired finishing render can be applied. It is recommended that 'h' profile straight-edges be used with this product for best results.

## Coverage

Depending on the substrate a 25kg bag of PT 200 yields approximately 1.5 square metres at 10mm thickness.

## Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

PT 200 should not be applied to wet or green cementitious substrates before a reasonable curing/drying period.

Paint should not be applied to mineral plasters until sufficiently hardened and dried.

Allow 1 day/mm drying time prior to applying further coats of plaster. If necessary, contact Putz-technik for further information on drying times.

## Technical

PT 200 is manufactured using selected grades of sand, lime, cement and mineral additives. Sand particle size range is 0—2.0mm.

PT 200 has a high water vapour permeability (breathing activity).

Where a re resistance rating is required please contact Putz-technik.

Diffusion equivalent	15/35
Air-Entrainment vol %	16.9
Water retention %	95.0
Flexural strength N/mm <sup>2</sup>	1.07
Compressive strength N/mm <sup>2</sup>	2.8
Bond strength N/mm <sup>2</sup>	0.43

## Storage

PT 200 is packaged in 25kg paper bags, with 40 bags (1 tonne) per pallet.

PT 200 can be stored in a dry place for up to 6 months.

## Quality Control

PT 200 is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Adhesive Render

##### HEIDELBERGER PT 300

**PT 300** is a factory mixed adhesive render following European standard DIN 18550 and DIN 18555 and is suitable for use as a bond (key) coat on Brick, Brick Veneer, Light weight concrete, Aerated concrete, Block work and Fibre Cement Sheet.

**PT 300** Adhesive Render can be universally applied to outdoor areas and can be used as a key or bonding plaster on polystyrene.

**PT 300** can also be used to fix polystyrene boards to all common, good bearing wall backgrounds or as a basecoat on pre-cast or clean painted surfaces.

#### Preparation

The substrate must be of a sound nature, free from dust and loose particles, form release oils and other contaminants which could affect adhesion and bonding strengths of subsequent coatings. Substrates with voids, defects and uneven surfaces do not require special preparation.

#### Application

**PT 300** is suitable for commercial plastering machines or manual application (drill mixed only).

**PT 300** can be used as a basecoat to a minimum of 3-4mm thickness, thereby providing a bonding surface for further coats of plaster.

On all surfaces as above, the use of fibreglass mesh embedded wet-in-wet either in the first 3-4mm of plaster (**PT 300**) or in a specific meshcoat (see **PT 320**) is essential. The entire area to be plastered must be meshed in this way. When trowelling mesh into **PT 300** ensure that the fibreglass mesh is trowelled in such a way that it remains towards the exterior surface of the plaster and that it is overlapped at least 100mm where it is joined. Putz-Technik recommends the use of **Fibreglass Reinforcing Mesh(160gsm)**

#### Coverage

Depending on the substrate a 25kg bag of **PT 300** yields approximately 3 square metres at 5mm thickness.

## Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters. Do not add further water to **PT 300**/water mixture later than two hours after original mixing. Allow 1 day/mm drying time prior to applying further coats of plaster. If necessary, contact Putz-technik for further information on drying times.

## Technical

**PT 300** is manufactured using selected aggregates, cement and mineral additives. Sand particle size range is 0—1.0mm.

**PT 300** has a high water vapour permeability (breathing activity). Where a re resistance rating is required please contact Putz-technik. Compressive Strength N/mm<sup>2</sup> following European Standard DIN 18555 10.0

Flexural Strength N/mm<sup>2</sup> 4.54

Bond Strength N/mm<sup>2</sup> 0.67

Water Demand

following European Standard DIN 52617 < 0.5

Water Retention (%) 99.8

## Storage

**PT 300** is packaged in 25kg paper bags, with 40 bags (1 tonne) per pallet. **PT 300** can be stored in a dry place for up to 6 months.

## Quality Control

**PT 300** is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Skimcoat Render (for fibre-cement sheet) HEIDELBERGER PT 350

PT 350 Skimcoat Render is a factory mixed adhesive render following European standard DIN 18550 and DIN 18555 and is suitable for use as a thincoat bonding render on 7.5mm fibre-cement sheet and AAC Blocks.

PT 350 can be universally applied to outdoor areas. PT 350 can be used to provide a key and/or to straighten wall before the application of a finishing render.

#### Preparation

The substrate must be of a sound nature, free from dust and loose particles and other contaminants which could affect adhesion and bonding strengths of subsequent coatings.

#### Application

PT 350 can be trowelled to a minimum thickness of 3 to 4 mm as a bonding and/or straightening coat on fibre-cement sheet thereby providing a bonding surface for further coats of plaster. PT 350 is suitable for commercial plastering machines or manual application (drill mixed only).

#### Coverage

Depending on the substrate a 25kg bag of PT350 yield approximately 5 square metres at 3 to 4 mm thickness.

#### Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

Do not add further water to PT 350/water mixture later than two hours after original mixing time.

## Technical

PT 350 is manufactured using selected aggregates, cement and mineral additives. Sand particle size range is 0—1.0mm.

PT 350 has a high water vapour permeability (breathing activity).

Where a re resistance rating is required please contact Putz-technik.

Compressive Strength N/mm<sup>2</sup>

following European Standard DIN 18555 > 3

Flexural Strength N/mm<sup>2</sup> > 2.5

Bond Strength N/mm<sup>2</sup> > 0.3

Water Demand

following European Standard DIN 52617 < 0.5

Water Retention (%) 99.8

Water Absorption Coefficient < 0.25

## Storage

PT 350 is packaged in 25kg paper bags, with 40 bags (1 tonne) per pallet.

PT 350 can be stored in a dry place for up to 6 months.

## Quality Control

PT 350 is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Jointing Compound HEIDELBERGER PT 351

PT 351 is a factory mixed adhesive render following European standard DIN 18550 and DIN 18555 and is suitable for use as a jointing compound on 7.5mm fibre-cement sheet.

PT 351 can be universally applied to outdoor areas and has excellent adhesion properties while maintaining optimum flexibility to allow for movement in the structure of the wall.

#### Application

PT 351 should be drill mixed only and can be used to a maximum thickness of 5mm in one coat.

The use of 70mm wide fibreglass mesh embedded wet-in-wet in the plaster is essential. All sheet joints must be meshed in this way. Putz-technik recommends the use of Fibreglass Mesh breglass reinforcing mesh.

#### Coverage

A 25kg bag of PT 351 will normally be sufficient to cover joints on approximately 90 square metres of wall.

#### Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

Do not add further water to PT 351/water mixture later than two hours after original mixing time.

#### Storage

PT 351 is packaged in 25kg paper bags, with 40 bags (1 tonne) per pallet.

PT 351 can be stored in a dry place for up to 6 months.

## Quality Control

PT 351 is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Whiteset Internal Renders HEIDELBERGER PT 400, PT 402, PT 451

PT 400, PT 451 and PT 402 are factory mixed gypsum-lime based dry plasters following European standard DIN 18550 and DIN 18555.

PT 400 Adhesive Render can be applied to all internal walls and ceilings and to all masonry substrates including fibre cement sheet, as well as Gib Board.

PT 451 is specially formulated for use as a basecoat on polystyrene.

Where a high level trowel finish is required PT 402 can be applied as a finishing coat over PT 400 or directly over Gib Board.

All three gypsum plasters have excellent adhesion and compression/flexural strength ratios.

#### Preparation

The substrate must be of a sound nature, free from dust and loose particles, form release oils and other contaminants which could affect adhesion and bonding strengths of subsequent coatings.

Substrates with voids, defects and uneven surfaces do not require special preparation.

When rendering Gib Board with PT 400 or PT 402, all joins must be taped and stopped prior to plastering.

In bathrooms or where waterproofing of internal walls may be required, contact Putz-technik for application details.

#### Application

On polystyrene, PT 451 is used as a basecoat from 5mm to 8mm thick, thereby providing a bonding surface for further coats of gypsum plaster (i.e. PT 400).

PT 400 can be applied as a single coat directly to masonry and Gib board substrates without the necessity of a basecoat. PT 400 can be applied from 3mm up to 20mm thick. PT 402 can be applied to a minimum thickness of 2mm.

PT 400 and PT 451 are suitable for commercial plastering machines or manual application (drill mixed only). PT 402 is suitable for drill mixing only.

When rendering polystyrene, the use of fibreglass mesh fully embedded wet-in-wet in the first 5—8mm of plaster (PT 451) is essential over the entire area being plastered. When trowelling mesh into PT 451 in this way ensure that the fibreglass mesh is trowelled so that it remains towards the exterior surface of the plaster and that it is overlapped at least 100mm where it is joined. Putz-technik recommends the use of Fibreglass Mesh fibreglass reinforcing mesh.

When rendering cementitious substrates or Gib Board (with PT 400), fibreglass mesh should be used in areas of known or potential stress such as door and window lintels, dissimilar substrates, etc.

With a 3—4 hour setting time, all three whitesets can be easily worked to any desired effect.

## Colour

PT 400 and PT 402 can be ordered pre-coloured with oxide.

## Coverage

Depending on the substrate a 16.67kg bag of PT 400, PT 402 or PT 451 yields approximately 1.5—6.0 square metres.

## Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

Paints and sealers should not be applied to mineral plasters until sufficiently hardened and dried.

Once mixed, do not add further water to whiteset/water mixture.

## Technical

PT 400, PT 402 and PT 451 are manufactured using selected aggregates, gypsum, lime and mineral additives. Sand particle size range is 0—1.0mm.

All three whitesets have high water vapour permeability (breathing activity).

Where a fire resistance rating is required please contact Putz-technik.

Compressive Strength N/mm<sup>2</sup>

following European Standard DIN 18555 2.5—3.5

Flexural strength N/mm<sup>2</sup> 1—1.5

Specific gravity 1.20

## Storage

PT 400, PT 402 and PT 451 are packaged in 16.67kg paper bags, with 30 bags (½ tonne) per pallet.

PT 400, PT 402 and PT 451 can be stored in a dry place for up to 6 months.

## Quality Control

PT 400, PT 402 and 451 are quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### Insulating Render HEIDELBERGER PT 600

PT 600 is a factory mixed dry plaster following European standard DIN 18550 and DIN 18555 and has been formulated for use as an insulating plaster.

A machine plaster, PT 600 can be applied directly onto all masonry substrates including bre-cement sheet.

#### Preparation

The substrate must be of a sound nature, free from dust and loose particles, form release oils and other contaminants which could affect adhesion and bonding strengths of subsequent coatings.

Substrates with voids, defects and uneven surfaces do not require special preparation.

In the case of smooth concrete a key (PT 300) must be applied prior to the application of PT 600. Contact Putz-technik for specific application details.

#### Application

With excellent adhesion and having a favourable compression/flexural strength ratio, PT 600 is suitable for commercial plastering machines or manual application (drill or machine mixed). PT 600 can be used as a basecoat on rough concrete, concrete block or bre-cement sheet at a thickness of 10mm to 100mm.

In areas of known or potential stress such as door and window lintels, dissimilar substrates, panel deflection due to wind loading etc, we recommend the use of Fibreglass Mesh breglass reinforcing mesh embedded wet-in-wet in the plaster or in a separate meshcoat (PT 320). Ensure that the breglass mesh is trowelled in such a way that it remains towards the exterior surface of the plaster and that it is overlapped at least 100mm where it is joined.

During setting the applied areas may be screeded and cut. Once the required straightness and surface has been achieved, and following sufficient drying time, further coats of plaster can be applied. It is recommended that 'h' profile straight-edges be used with this product for best results.

## Coverage

Depending on the substrate 1 bag of PT 600 yields approximately 1.4 square metres at 25mm thickness.

## Important

Do not under any circumstances add foreign substances other than clean water to premixed mineral plasters.

PT 600 should not be applied to wet or green cementitious substrates before a reasonable curing/drying period.

Allow a reasonable drying time prior to applying further coats of plaster. If necessary, contact Putz-technik for further information on drying times.

## Technical

PT 600 is manufactured using selected grades of lime, cement, perlite and mineral additives. Particle size range is 0—2.0mm.

PT 600 has a high water vapour permeability (breathing activity).

Where a re resistance rating is required please contact Putz-technik.

Water demand 340

Water retention % 91.1

Flexural strength N/mm<sup>2</sup> 1.98

Compressive strength N/mm<sup>2</sup> 4.7

Bond strength N/mm<sup>2</sup> 0.45

INSULATION DATA for Gib lined or internally (gypsum) plastered 200mm concrete block wall (combined R - Value = 0.368) + varying thicknesses of PT 600

Thickness PT 600	R - Value
10mm	0.48
20mm	0.59
30mm	0.70
40mm	0.81
50mm	0.92
60mm	1.04
70mm	1.15
80mm	1.26
90mm	1.37
100mm	1.49

## Storage

PT 600 is packaged in paper bags.

PT 600 can be stored in a dry place for up to 6 months.

## Quality Control

PT 600 is quality controlled at point of manufacture and tested by independent laboratories.

## Service

At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### FIBREGLASS MESH

Fibreglass Mesh is a German manufactured fibreglass mesh.

Fibreglass Mesh is suitable to reinforce substrate stress points such as butt joints, slip joints, lintels, etc for internal gypsum and external adhesive renders. In the case of 4-5mm breccement sheet and polystyrene breccement mesh must be used over the entire area to be plastered.

#### Application

Fibreglass Mesh is embedded wet-in-wet into mineral renders by trowel. After installation, subsequent coatings can be applied once the bedding coat is fully dry.

- Fibreglass Mesh must be cut with sharp scissors or knife – do not tear.
- Fibreglass Mesh must not be stretched or pulled during handling or installation.
- Fibreglass Mesh is installed only by wet-in-wet embedding into mineral coatings and must not be nailed or stapled to the substrate.
- Where extra lengths of Fibreglass Mesh are required this must be overlapped by at least 100mm.
- See Technical Information sheets for PT 200, PT 300, PT 320, PT 325, PT 351 and PT 400/451 for application specifications on relevant substrate.

#### Technical

Fibreglass Mesh is alkaline resistant

Weave:	LENO
Ends:	3.2/cm
Picks:	1.6/cm
Weight:	160g/m <sup>2</sup>
Warp:	1360 DTEX Glass
Tensile:	1020 N/50mm
Extension:	3.8%
Weft:	2720 DTEX Glass
Tensile:	1035N/50mm

Extension: 3.8%  
Adhesive: AR Binder  
Width: as nominated

## Storage

Fibreglass Mesh is supplied in 50m rolls of the following widths:

Hard Mesh	Soft Mesh
1m x 50m	100mm x 50m
75mm x 50m	200mm x 50m

Fibreglass Mesh can be stored indefinitely.

## Service

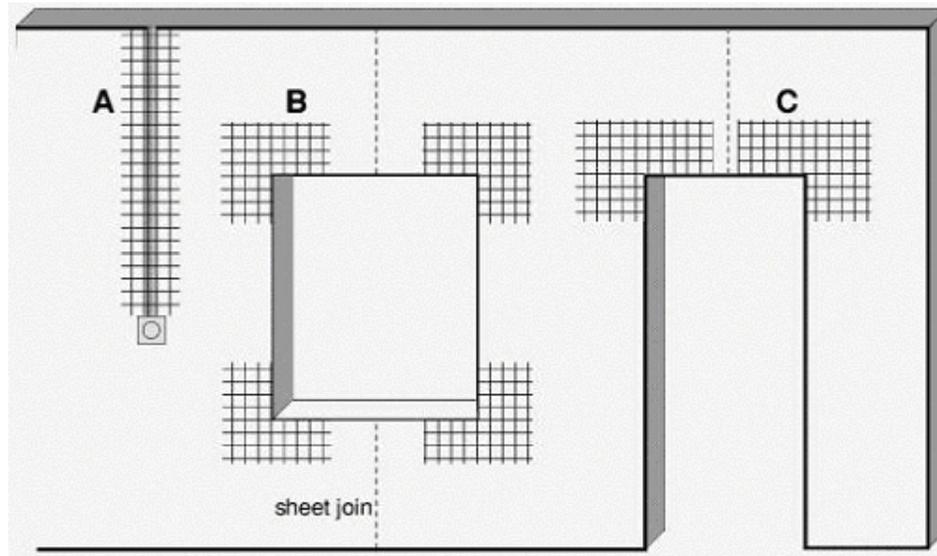
At the forefront of plastering technology, Putz-technik offers its assistance and experience in the selection and use of our products and machines.

Demonstrations are available on request.

# MESH APPLICATION GUIDE

## STRESS CRACK PREVENTION FOR POLYSTYRENE ALL MASONRY SUBSTRATES – INTERNAL AND EXTERNAL

### WHERE TO APPLY FIBREGLASS MESH



#### A CHASINGS

Apply mesh to a width of 150mm or greater to a single chasing (increase width 50% for double chasings).

#### B OPENINGS

Apply mesh 300mm square to all corners.

#### C LINTELS

Apply mesh 300mm x 400mm to lintel corners.

N.B. Over polystyrene and fibre-cement sheet the entire surface must be meshed.

## MINERAL PLASTER TECHNOLOGY

### TECHNICAL INFORMATION

#### MESH BEADS

Putz-technik rigid and Rolleck mesh beads are German manufactured and are for use for strengthening and straightening all corners (external and internal) and reveals. They are generally used when plastering on polystyrene.

#### Features

- available in both roll (Rolleck) and rigid form.
- manufactured from rigid perforated 25 x 25mm PVC strip and 160gsm breglass mesh.
- impact resistant.
- dimensionally stable.
- alkali resistant.
- Rolleck mesh beads can be used on all internal and external corners and at angles of
- rigid 2.5m mesh beads are for use on external corners only.

#### Application

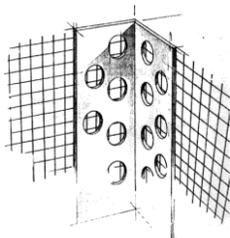
Place bead over top of existing breglass meshed/plastered area.

Overlap beads by 100mm where they are joined.

Ensure that the bead is totally covered with plaster.

Always ensure, when using Rolleck, that the breglass mesh faces outwards.

When using mesh beads on reveals, breglass mesh may require to be cut to dimension.



#### Rigid Mesh Bead

Rigid beads – available in either 60x90mm or 80x120mm mesh dimensions. Beads are 2.5m long, 100 beads per box (250m).

# Rolleck

measure length and cut

apply coating on substrate

embed and straighten one side – mesh  
on outside

trowel in mesh

repeat process for other side

Rolleck available in 125x125mm mesh dimensions, packaged in 25m or 50m roll lengths.