



ISOLTECO®

RANGE OF PRE-MIXED PLASTERS
WITH HIGH THERMAL INSULATION PERFORMANCE



THERMAL
Insulation & Chemicals Division



INSTALLATION MANUAL

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The realization of a manual is a complex operation that needs of several controls on the text, images and sketches that compose it. Experience suggests that it is impossible to publish a manual totally exempt from errors. We will be therefore thankful to the users of the present manual if, finding some mistakes, wanted to signal them to us. All the instructions contained in this manual are approximated and not binding in a general sense. It should also be specified that our instructions are not irrespective of all due precautions and good practice during installation referable to so-called "workmanlike" execution, which must always and under any circumstances be adopted in addition to following the detailed instructions given in our technical data sheets. All the indications provided in this manual of use are purely approximate and not binding for legal purpose. The data listed has been gathered from laboratory tests and it hence follows that in practical applications on building sites the final characteristics of the products may be subject to substantial variations depending on the meteorological conditions and the installation. The user must always check suitability of the product for its specific use, undertaking all liability implicit in and deriving from use of the product, as well as comply with all methods and instructions for use generally referable to "workmanlike" execution. Edilteco S.p.A. reserves the right to change the contents of this manual of use on its final judgements. Publish and, totally or partially, spread the contents of this manual without previous license of Edilteco S.p.A., is forbidden.



INTRODUCTION

ISOLTECO® RANGE: pre-mixed plasters with high thermal insulation performance, composed of hydraulic binders, virgin expanded polystyrene beads mixed with additives, and special additives. They have low water absorption and a very good steam permeability. For this reason they are perfectly stable and rot-proof over time. Isolteco® products guarantee constant technical performance over time.

THE SYSTEM

Among the many different systems to realize thermal insulating buildings, Isolteco® plasters are on the top in terms of quality, performance and versatility. They realize a coat which improves the living comfort thanks their excellent insulating power and the elimination of thermal bridges (if used as external wall insulation). Isolteco® plasters have very competitive costs and are easy to apply mechanically, without the compromising of the results by external factors.

GUARANTEED RESULT

Using Isolteco® plasters to cover external façades, you will soon see the results in terms of thermal insulation. In fact after 30 days from the application, an important difference between the surface temperature of external and internal walls is remarkable. Isolteco® plasters allow to realize important energy saving, both in winter, through the saving of heating fuel (natural gas, diesel fuel and electricity), and in summer, saving on conditioning systems (saving of electricity and system maintenance). Isolteco® plasters are included on the list of the “Non-conducting materials admissible for obtaining the contribution” published by the Energetic Saving Office of the Autonomous Province of Bolzano.

THE PRODUCTION

Isolteco® plasters are produced with new pre-mixing machines, constantly under electronic control and quality control, that guarantee their high performances and the total customer’s satisfaction.

Isolteco® range is produced in the quality system ISO 9001:

- **Isolteco® 150** and **Isolteco® 230** are supplied in bags of 60 L yield (an application of 2 m² of thermal plaster and a thickness of 3 cm) on pallet of 44 bags. It cannot be supplied in silos. Each bag must be entirely used. It’s not possible use one bag twice, even if closely.
- **Isolteco® Light 110** is supplied in bags of 70 L yield (an application of 2.30 m² of thermal plaster and a thickness of 3 cm) on pallet of 44 bags. It cannot be supplied in silos. Each bag must be entirely used. It’s not possible use one bag twice, even if closely.

WHERE TO APPLY ISOLTECO® RANGE PLASTERS

Isolteco® plasters are suitable to thermally insulate houses (both from exterior and interior), public and industrial buildings. They are suitable for both new buildings and refurbished ones. They can be used on any kind of masonry: brick, normal, foam, expanded or lightweight concrete, brick-cement, mineralized wooden boards, mesh or metallic lath, etc.

They can also be used with surfaces covered with old plaster (not on gypsum), but only if it is solid, healthy and at least cleaned by any painting, coat or contamination. Furthermore, it must be adequately hammered or covered with sand and impregnated with latex adhesion promoter like Edilstik (fresh-on-fresh application).

APPLICATION

1) SURFACE CLEANING

The perfect cleaning of the surface where Isolteco® will be applied is fundamental. In particular, the surface must be free of dust, oil residues, greases and release agents, traces of friable and/or inconsistent materials, old and non-healthy plasters or paintings. The surface must be in any case free from any material that could prevent the good and direct adherence of Isolteco® on the same surface.

It's user's responsibility to establish and guarantee that the surface's conditions are adequate to be covered by Isolteco®.

2) MASONRY CONTROL

Before the application of Isolteco®, some controls of the masonry and the conditions of use must be done, in order to simplify the use and make the application better.

a. The moisten

<ul style="list-style-type: none">• BRICK• CEMENT BLOCK	The night before the application of Isolteco® moisten with water.
<ul style="list-style-type: none">• FULL BRICK• STONE• CONCRETE	Shortly before the application of Isolteco®, moisten without leaving water on the surface.
<ul style="list-style-type: none">• FOAM EXPANDED CEMENT BLOCK, SUPERLIGHT, TUFF	Lay an adhesion layer of sand and cement mixed with Edilstik additive or use a specific mortar for scratch.
<ul style="list-style-type: none">• SURFACES WITH PLASTERS	Perfectly clean the surface from dust, oil residues, greases and release agents, traces of friable and/or inconsistent materials, old and non-healthy plasters and paintings. The surface must be in any case free of any material that could prevent the good and direct adherence of Isolteco® on the same surface. Impregnate fresh-on-fresh the entire surface with Edilstik: lay Isolteco® on the impregnated and still moist surface.

b. The reinforced mesh

In case of the presence of **wooden beams, iron girders**, exposed parts of **wooden fibre, cork, polystyrene, polyurethane** panels, and in case of **structural concrete (beams/pillars)**, directly on the surface, it's necessary to apply a **reinforced mesh** before the application of Isolteco®.

Use a mesh with minimum dimensions 5 x 5 mm, 160 gr/m², fixed at minimum 15 cm to the adjacent wall. The reinforced mesh must be entirely covered by a scratch coat layer like Edilteco **Geco Lime Scratch**.

3) CORNERS AND INTERMEDIATE STRIPS PREPARATION

a. With wooden boards

Using wooden boards in the building's corners and openings like doors and windows, make plumb lines throughout the thickness. Make the intermediate strips using exclusively Isolteco®. In case of intermediate strips or corners made with different materials from Isolteco®, they must be carefully removed. Place the boards according to the plumbs and the thickness required by the customer. String the wire from one corner to the other in order to realize the intermediate strips during the application of the first coat of Isolteco®. The intermediate strips, realized with Isolteco®, will have to be positioned not more than 2 m apart.

NB: the strips realized in this way could have some crazing, which will be covered by the second coat application of Isolteco®, without causing detachment or cracking.

With this processing method, once reached the right curing of Isolteco® [see paragraph 8 - Skimming coat], it must be considered the application of the steel corner profiles, with a maximum thickness of 5 mm (like corner profiles for plaster board or pvc corner profiles with mesh), corresponding to all the building's corners, including doors, windows and string courses.

b. With steel corner profiles (picture 1)

Proceed to make vertical grooves throughout the entire thickness, using specific galvanized steel corner guards for the corners. Make the intermediate strips using exclusively Isolteco® 230, Isolteco® 150 or Isolteco® Light 110, metal clamps or wooden batten.

NB: in case of intermediate strips or corners made with different materials from Isolteco®, they must be carefully removed.

Perfectly square each wall of the building to cover with Isolteco®, using the wire.

Place the corner profiles on the corners, stopping it in points with thermal mortar. Then, lay with the same method the intermediate strips (beveled type), which have to be positioned not more than 2 m apart.

After the second application of Isolteco®, it is mandatory to remove the clamps and the cement level points.

The free empty spaces will be filled with Isolteco® 230, Isolteco® 150 or Isolteco® Light 110.

For thickness over 6 cm it is recommended to use the **wooden board processing method**.



picture 1

4) APPLICATION PHASES

According to the thicknesses, it could be necessary to realize the total thickness of Isolteco® with a minimum of two coats:

A	from 2 to 4 cm of thickness:	2 coats consisting of:	1 st coat: approx. 1 cm 2 nd coat: final layer
B	from 4 to 6 cm of thickness:	3 coats consisting of:	1 st coat: approx. 1 cm 2 nd coat: approx. 2 cm 3 rd coat: final layer
C	from 6 to 8 cm of thickness:	3 coats consisting of:	1 st coat: approx. 2 cm 2 nd coat: approx. 3 cm 3 rd coat: final layer

Wait for at least 4 hours before applying the second coat; this coat has to be considered as final layer in case 4A, or to be filled in case 4B and 4C.

If the second coat is applied a few days after the first coat's application, clean the surface 24 hours before the application of second coat, in order to eliminate the dust and have a dried surface, ready for the second coat.

With Isolteco® is possible to realize plasters of thickness greater than 8 cm, adding further coats, each one 2 cm thick.

5) APPLICATION METHOD

a. With wet wall (climatic periods with temperatures ranging from +15 °C to +35 °C)

After the wetting of the surface (as described in the paragraph 2 "Masonry control"), proceed with the spraying, keeping the nozzle of the plastering machine at a distance of approximately 20 cm from the wall.

The first coat has to cover uniformly the whole masonry, in order to guarantee a perfect adhesion of Isolteco® on the surface and have a uniform basis on which apply the following coat (in the case of manual application, it is mandatory to apply the mortar using a steel trowel. Press the product moving the trowel upwards). During the application of the first coat of Isolteco®, the intermediate strips have to be created and positioned not more than 2 m apart (see paragraph 3a). Then, the prefixed clamps have to be filled in points and laid during the preparation phase (see paragraph 3b).

b. With NOT wet wall (climatic periods with temperatures ranging from +5 °C to +15 °C)

In winter, and in very cold periods, it's not recommended to wet or moisten the surface of Isolteco®, because of the risk of frost. For this reason the application method is different. The spraying must be done at a distance of about 20 cm from the wall. The thickness of the first coat has to be greater. This device is fundamental in order to have a better adhesion, which allows using less material in the second coat. Consequently, the finishing thickness will be lower, and so will the quantity of water that will evaporate. This reduces the risks caused by a possible night frost (blistering with detachment).

The application thickness recommended for Isolteco® (global thickness up to 4 cm) needs a first coat of 2.0 - 2.5 cm with formation of strips.

Let Isolteco® stand for not more than 8 hours, before applying the second coat of 1.0 - 1.5 cm, with filling and skimming coat on the clamps.

In case of the application of the second coat some days after the first one, wash the surface 24 hours before the second coat application.

This is to remove any settled dust and, at the same time, to ensure a dry, frost-free substrate for the second coat.

6) MIXING

The first coat with Isolteco® must be left rough or pressed with a steel trowel. The final coat will be stroked off in order to obtain a perfectly flat surface, thanks to a slat or a line, called "H". The contact surface with Isolteco® will be very thin, never more than 3 mm. Any possible flatness defects could be regulated, only on wet, with the use of Isolteco®, worked with a steel trowel.

7) SCRAPING

The scraping (steel trowel or straightedge) needs a scraper to eliminate from the final surface of Isolteco® any possible defect caused by the final striking off. The scraping aims also to eliminate the polystyrene beads that superficially are not well covered by binder. These beads, in fact, could emerge on the surface during the skimming coat application (maximum thickness allowed: 5 mm), compromising the exterior aspect of the finishing.

The scraping has to be performed:

- Warm season:* after 24 - 48 hours from the final coat.
- Cold season:* after 72 - 96 hours from the final coat.

8) SKIMMING COAT

It's an external surface protection coat, performed with Isolteco® plasters range. The ideal product to use for this aim is **Ecap® ADP**. Other cement-based products can be used if in compliance with the above-mentioned technical specifications. The skimming coat thickness must be between 4 and 5 mm. For the interiors, gypsum-based plaster and canary grass can be used. The products having a low breathability are not recommended. The maximum thickness allows not making the surface charge heavier on Isolteco® layer, and avoiding risks of skimming coat detachment from the support. Isolteco® plasters are not afraid to be exposed to the bad weather. Anyway, the skimming coat is recommended as mechanical protection in case of collisions or as base for the aesthetic finishing, chosen by the customer. To further improve the mechanical surface resistance of the external plaster with **Isolteco® 230**, or in case of laying surface composed of irregular materials, it is strongly recommended the insertion of a fibreglass mesh (minimum 140 gr/m²), placed in the skimming coat layer.

In the same skimming coat layer, with Isolteco® 150 or Isolteco® Light 110 roofing, the insertion of a fibreglass mesh (minimum 160 gr/m²) is mandatory.



The skimming coat must be performed only after the curing of the external insulation system:

- Warm season:* not earlier than 6 days.
- Cold season:* not earlier than 10 days.

The period of curing is necessary to allow the evaporation of 90% of excess water, present in Isolteco® mix, in order to guarantee the best adhesion among the coats of Isolteco® 230, Isolteco® 150 or Isolteco® Light 110. In case of early application, the moisture content of Isolteco®, and the stress caused by the handmade skimming coat may cause spider web cracks on the skimming coat and the detachment of it from the Isolteco® coat.

9) FINISHING PRODUCTS

The finishing coat is applied on the skimming coat layer and can be prepared with the following materials:

- Refined dry mortar (like **Ecap® ADP**).
- Coloured mineral mortar, to apply with trowel.
- Coloured silicate mortar, to apply with trowel (like **Ecap® STC**).
- Other coloured finishing in paste (like **Ecap® SC**).
- Paintbrush and roller painting (like **Ecap® SP**, **Ecap® STP**), anyway products with high breathability.

The refined mortar finishing is realized only in case of the paintbrush or roller painting is required. With other kinds of painting, that need of a rough bottom, the refined mortar is not applied.

9.1) HEAVY COATS with maximum excess load of 50 kg/m² on Isolteco® 230

Any possible skirting or ceramic, marble, stone, terracotta floor coats and/or “reconstructed stone coat like SAS” or other material, can be applied directly on the final layer of Isolteco® 230, respecting the following warnings:

1. Maximum coat height: 3 m.
For heights over 3 m contact Edilteco Technical Department.
2. Maximum dimensions of coat tiles: 300 x 300 mm - thickness 8 mm (provide expansion joints every 16 m²).
For coats with dimensions and/or thickness greater than 300 x 300 x 8 mm, in addition to the suitable adhesives, it has also to be considered suitable mechanical couplings (hooks, metal structures, etc.).
3. Apply the adhesive coating directly on the Isolteco® 230 layer, **without realizing the skimming coat of point 8.**

9.2) HEAVY COATS with maximum excess load of 50 kg/m² on Isolteco® Light 110 or Isolteco® 150

Any possible skirting boards or ceramic, marble, stone, terracotta floor coats and/or “reconstructed stone coat like SAS” or other material, can be applied on reinforced skimming coat mortar layer, respecting the following warnings:

1. **Skirting boards:** maximum height 1 m. It lays on the sidewalk and the coat is glued on the skimming coat layer.
2. **For heights over 1 m:** the coat will have to be applied on the skimming coat layer and mechanically fixed to the masonry (it will be care of the supplier to guarantee the adhesion to the surface and the depth of anchorage).

10) YIELD TEST OF SINGLE BAG

1. Use a traditional cement mixer (minimum capacity of 100 L and with at least 3 mixing blades).
2. Introduce the bag into the cement mixer, adding the amount of water as indicated in the bag.
3. Mix for 10 minutes.
4. Pour the mortar into a mould, using all the product within the cement mixer.
5. Stage and level the mortar.

APPLICATION WITH PLASTERING MACHINE

Plastering machines with helical mixer (like PFT G4-G5 or similar) with **solid screw** used for the application of Isolteco® plasters, in order to guarantee the introduction of Isolteco® in the mixing chamber, avoiding the risk of segregation between the polystyrene aggregate and the binders.

The plastering machines have to be prepared with some accessories, supplied by the manufactures, for the use of thermal insulating plasters. In particular, these accessories are essential:

- a. **helical mixer** for insulating plasters (with solid screw - picture 1);
- b. **stator** from minimum 30 L insulator (D8/1.5 model - picture 2);
- c. **FOR ISOLTECO® 230: long-pitched screw** (D8/1.5 model);
- d. **MANDATORY FOR ISOLTECO® 150 AND ISOLTECO® LIGHT 110:** application of turbo or mini-turbo, **long-pitched screw with axle** (picture 3);
- e. **cap or nozzle, 14 mm of diameter;**
- f. **water pipe mount in the lower connection of the mixing chamber (for superlight plasters).**



Moreover, it's necessary to follow some recommendations in order to use in a better and more linear way the plastering machine, reducing the risk of mistakes during the application of Isolteco® by the applicator:

1. The full efficiency of the plastering machine, in order to avoid the formation of "caps" of material in the pipes, has to be guaranteed after the:
 - a. constant control of the water filter's cleaning;
 - b. cleaning of the mixing chamber every night;
 - c. washing of the material carrier pipes and the mixing chamber after each pause greater than 30 minutes;
 - d. application of a ball tap on the nozzle. The tap has to be closed immediately after the air closure (picture 4);
 - e. application of turbo or mini-turbo (picture 5), with suitable screw (removal tool) with axle; *this device avoids the formation of air pocket in the material carrier pipes and the consequent distribution anomalies during the plastering machine.*
 - f. **FOR ISOLTECO® 230:** set the flow-meter for the water mixture on values between 250 and 300 L/hour, in order to obtain the perfect product texture. At the early stage of spraying, the flow-meter has to be adjusted at 350 L/hour and then reduce the calibration during the manufacture process up to the given values. The scarce absorbing water used to mix **Isolteco® 150** or **Isolteco® Light 110** requires the use of the flow-meter with a graduation from 0 to 315 L/hour and a calibration of 150-200 L/hour.



2. The use of a wheel cover in the hopper of material load: it avoids the entrance of only polystyrene in the mixing chamber during the emptying of Isolteco® bags in the hopper.
3. The use of the lift is recommended to allow the introduction of a bigger quantity of Isolteco® in the hopper of load, in order to avoid the total emptying of the machine and the possible risk of spraying inconsistent or uneven mortar.
4. The air pipe has to be inserted in the sprayer nozzle with the terminal at 1/2 cm from the edge. This avoids the formation of caps, caused by the detachment of the polystyrene aggregate from the binders.
5. It's always necessary to have a nozzle sprayer with a container for collecting the outgoing material from the cap, after the air stop. This material **CAN'T BE** directly applied on the wall, like the cement-based premix: it **HAS TO BE** collected in a bucket and then applied on the wall, only as a coat that follows the first one.
6. After the air stop, the nozzle mustn't be put within the container with the output material. This device is important to avoid mixing again the mixed material in the air pipe.

FALSE PROBLEMS AND PROBLEMS

With over 40 years of experience in the production and application of thermal insulating plasters, Edilteco can affirm that Isolteco® range plasters, if used according to the technical provisions and for the expected fields of application, can't have any anomaly or problem. Over time, Edilteco has faced many different situations and the most unusual set of problems, getting a deep knowledge of the product and the certainty that the application quality and professionalism are fundamental for the success of every activity.

FALSE PROBLEMS

Cracking of the first coat of Isolteco®:

It may happen, especially in winter, that the wall has not been moistened. In summer, this may happen because of an excessive thickness of the first coat or for the lack of wall moistening. In both cases, the problem may be solved if the following coats are applied with a minimum distance of 4 hours. There will be no effect on the final success of the work.

Cracking of the intermediate strips:

They may occur on the strips made during the application of the first coat of Isolteco®. They are caused by the loss of the mixing water, which happens in a very short time. Also in this case the problem will be solved after the other coats and won't have any effect on the final success.

PROBLEMS

Some problems may occur after irregular situations:

- It doesn't rest for at least 4 hours from the first coat (the one which guarantees the good adhesion of Isolteco® to the surface). This causes the detachment of Isolteco® from the surface.
- Large amounts of water in the mixture causes the immediate detachment of Isolteco® from the surface.
- A too scarce amount of water causes the immediate detachment of Isolteco® from the surface. In case of application with plastering machine, material caps may block the material carrier pipe.
- Excessive surface working of the final Isolteco® coat (too long floating) with consequent adhesion problems among the Isolteco® layers.
- Cracking in the presence of the strips is generated by the not removed level point of cement, mortar clamps different from Isolteco®.
- Excessive use of material: the material fallen down, during the working phases (that should not fall down if correctly used), can't be reused.

Instead, it is recommended:

to keep the manufacturing surface clean;

to collect the material that falls down;

to put the collected material (not more than 30 minutes from the spraying) in a container and add some cement and a little bit of water to obtain a homogeneous and hefty mixture;

to apply this product by an American trowel only on surfaces already covered by the first coat of Isolteco®.

- A skimming coat thickness greater than 5 mm involves the risk of important detachments and cracking, both of the smoothing and of Isolteco®.
- An excessive working load during the application of the finishing layer may cause the quick mortar dehydration and the consequent loss of adherence and formation of the crazing.
- The presence of areas with excessively friable Isolteco® and poor binder content may be caused by the material application with an empty machine or a plaster sprayer model not perfectly suitable. It's important that the plaster sprayer could send to the mixing chamber the product Isolteco® without parceling it out. It is also important to ensure that the plastering machine is always kept loaded with material and is not allowed to run completely empty before adding further bags of Isolteco®. It's recommended the use of the raising to guarantee a longer spraying time and a constant homogeneity of the mixture.
- To avoid the appearance of friable and inconsistent areas of plaster, it's necessary at the beginning of each spraying phase to check, before the application on the wall, if the mortar has reached the right water dosage and texture. It's recommended to start the spraying in a container close to the nozzle, in order to collect the spraying material for checking.

NB: *the collected material is not suitable to be used as plaster. It must be enriched with cement until it gets the right consistency. Then, it may be manually applied only as layer after the first one.*

PRODUCTS AND ACCESSORIES



ECAP® ADP Adhesive Powder

Ready-to-use, fibre-reinforced adhesive and skimming coat, in powder form.



ECAP® F Fixative

Universal, ready-to-use primer.



ECAP® STC Silicate Colour

Potassium silicate-based paste finish.



ECAP® STP Silicate Paint

Potassium silicate-based wall paint.



ECAP® SC Silicone Colour

Siloxane paste finish.



ECAP® SP Silicone Paint

Siloxane wall paint.



EDILSTIK

Synthetic latex for improving the properties of cementitious mortars.



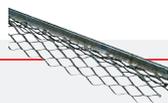
GECO LIME SCRATCH

Natural hydraulic lime-based bonding mortar.



FIBREGLASS MESH

160 g/m²
Synthetic support mesh in glass fibre, coated, alkali-resistant.



STEEL CORNER PROFILES

Steel corner profiles for thermal insulating plasters.



CORNER PROFILES

Corner profiles for insulation panels of different materials.



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