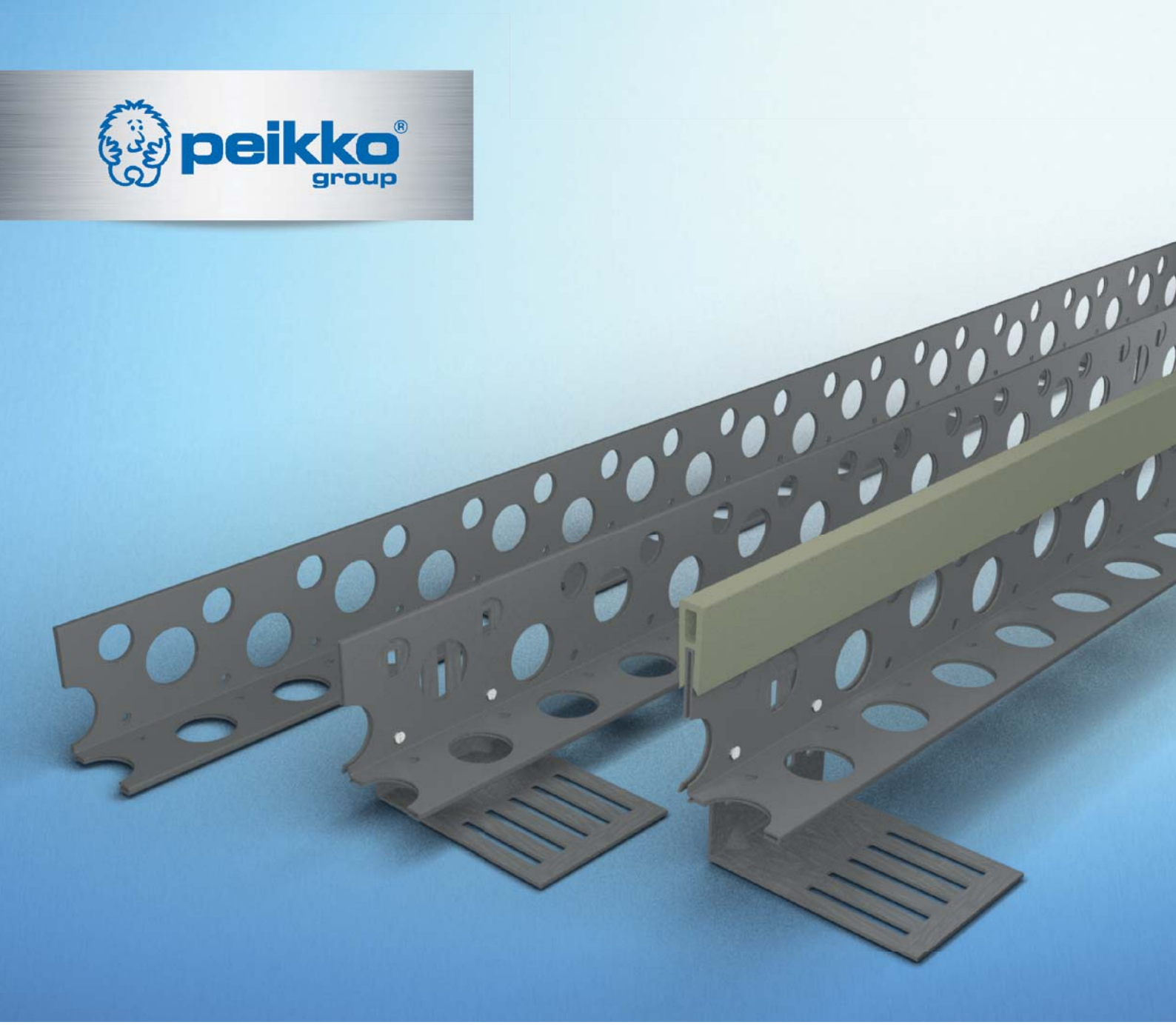


UNIRAIL

Screed Rails

Prefabricated screed rail/formwork system

Version: **Peikko Group 06/2014**

Technical Manual

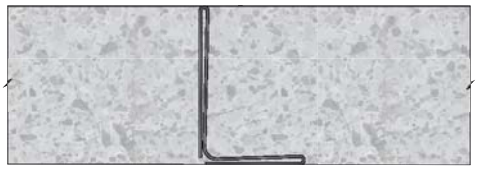
UNIRAIL

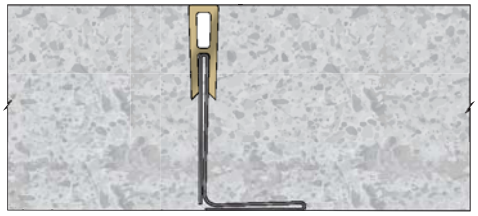
Screed Rail

Prefabricated screed rail/formwork system

System benefits

- Prefabricated leave-in-place screed rail which enables the easy installation of Superflat screeds.
- Manufactured from galvanised high strength steel, suitable for internal and external use.
- Light, strong and straight, manufactured within + or – 1 mm/m tolerance.
- Tie bars, service cables, or heating pipes, can be fitted through the apertures in the rails.
- Plastic TOPEXTENDER can be fitted to the top edge of the rail to provide smooth non-abrasive running face for any screeding mechanism.
- Provides a full strength perpendicular face to the edge of the slab in full depth without voids or cavities.





UNIRAIL is a cost efficient screed rail system produced by precision forming from high strength steel, providing excellent dimensional tolerances and stability during screeding operation. The system ensures straightness and flatness tolerances of screeds with depths from 40 mm to 120 mm.

It is a versatile fast track installation system, which consists of the basic UNIRAIL 40-60 screed rail, but by adding installation feet to the UNIRAIL 40-60, the UNIRAIL 70-120 can be created. Using this version the depth of the screed can be continuously adjusted up to 120 mm. With the simple addition of a plastic top cap, a stable base can be provided for running screeding mechanisms along.

Contents

1. Product Properties

A screed is a well compacted cementitious top layer often modified with a powder or liquid polymer (Modified Polymer Screed), installed on top of a slab or base.

UNIRAIL provides a guide for the screeding mechanism being used to install the screed. Screeding mechanisms range from a manually operated straight edge, to vibrating screed machines and striker tubes. The UNIRAIL permit the accurate passage of the screeding mechanism along their length, and the screed material placed between the rails is accurately levelled off to the correct height and flatness.

Plastic top cap/extenders are not only suitable for providing a base for running screeding mechanisms on, they also increase the overall height of the UNIRAIL either by 5 mm or by 15 mm. The TOPEXTENDER strip can be left in the floor, or removed and the gap filled by flexible joint filler, or if preferred the gap can be kept free as an anchor channel for floor finishes.

UNIRAIL screed rails can be used for the following screed applications:

1. To increase the height of the floor slab.
2. To improve the flatness and level tolerance of the floor slab.
3. To provide a finish layer to an otherwise unacceptable slab surface, also suitable for diamond grinding screed to expose the aggregates contained within.
4. To install a specialised wearing or high abrasion top layer to the floor.
5. Ideal for use on concrete and metal composite concrete floors.
6. Suitable for construction of floors with under floor heating pipe systems and other services.
7. Can be used for construction of falls to drains.

1.1 Materials and Dimensions

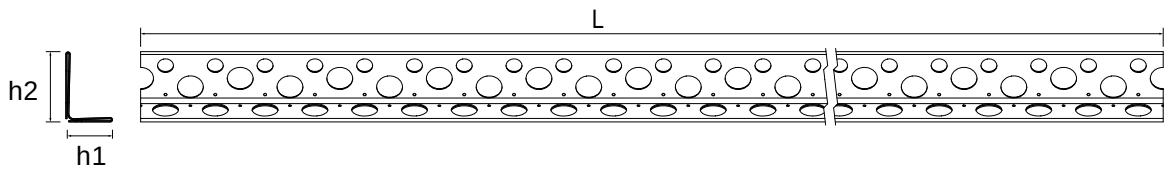
1.1.1 Materials

Table 1. Materials of UNIRAIL system

Component	Material
UNIRAIL 40-60	S250G-D+Z275
UNIRAIL 70-120 Feet	S355MC
TOPEXTENDER	PVC DVE 252/007 Black

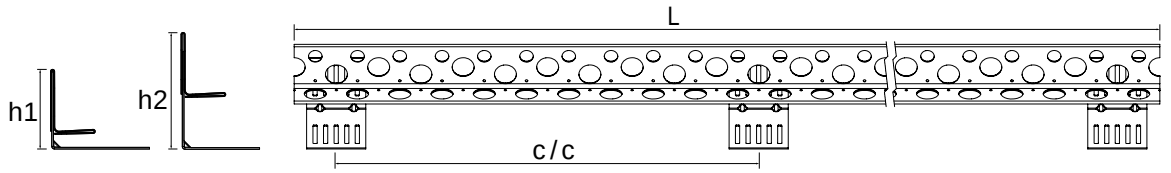
1.1.2 Dimensions

Table 2. Dimensions [mm] of UNIRAIL 40-60



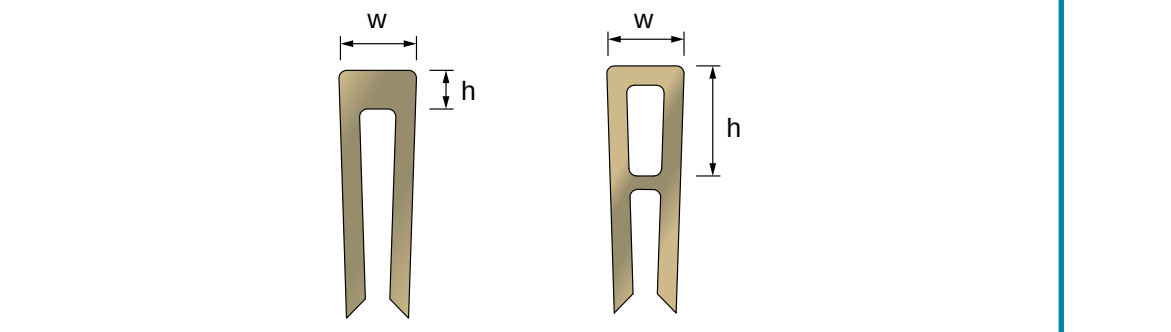
Type	Height h1, h2	Length L	Weight [kg/m]	Advisable slab depth
UNIRAIL 40-60	40, 60 mm	2700, 3000 mm	0.91, 1.01	40 ~ 100 mm

Table 3. Dimensions [mm] of UNIRAIL 70-120



Type	Height h1, h2	Length L	Feet Spacing c/c	Weight [kg/m]	Advisable slab depth
UNIRAIL 70-120	70~90, 90~120 mm	2700, 3000 mm	600 mm	1.13	70 ~ 120 mm (135 mm with 15 mm TOPEXTENDER)

Table 4. Dimensions [mm] of TOPEXTENDER



Type	Height h	Width	Length	Weight [kg]
TOPEXTENDER 5	5 mm	10 mm	3000 mm	0.19
TOPEXTENDER 15	15 mm	10 mm	3000 mm	0.19

Selecting UNIRAIL 40-60 or 70-120 screed rails

UNIRAIL is selected according to following criteria:

- **Screed depth**. The recommended screed depths are stated in table 2. and table 3. It is recommended to use UNIRAIL 40-60 for screed depths up to 100 mm using installation by concrete dabs on concrete surfaces. For deeper screeds and to installation to smooth surfaces it is recommended to use UNIRAIL 70-120 with UNIRAIL 70-120 feet.
- **Width of the screeding mechanism**. The distance between the parallel rails is determined by the length of the screeding mechanism to be used, but seldom exceeds 6 metres apart. The amount of UNIRAIL screed rails required, is calculated by dividing the total area into strips with their width determined by the length of the screeding mechanism used, and an extra length for finishing against the perimeter should be added.
- **TOPEXTENDER installation**. It is recommended to install the TOPEXTENDER if a vibrating screed machine or striker tube is used as a screeding mechanism. The TOPEXTENDER should be selected according to total depth of the screed.

Installation of UNIRAIL

Installing UNIRAIL 40-60 Screed Rails using concrete dabs:

1. Place a stringline, or mark out the line the rail is to be installed along.
2. Place dabs of concrete or screed mix at regular intervals along the line, ensuring that there is one where the rails connect together.
3. Place the rails in line and tap gently down into the concrete dabs.
4. Using either an optical sight, laser and spirit level, ensure that the rails are levelled at the correct height, tapping down as required – taking care not to tap down too far into the concrete dabs.
5. Clean off the excess concrete around the screed rail and allow concrete dabs to cure.
6. Place ties or dowels if required, through the apertures in the rails, ensuring that sufficient are used to withstand the shrinkage forces or transfer the load if required.
7. Fill the area between the rails with the screed and strike off level – close the surface of the screed with a trowel or float as required to achieve the desired finish.

Setting UNIRAIL 40-60 on concrete or screed mix dabs.

Adjusting UNIRAIL 40-60 for height using an optical sight level and measuring staff.

Adding tie bars or dowels if required.

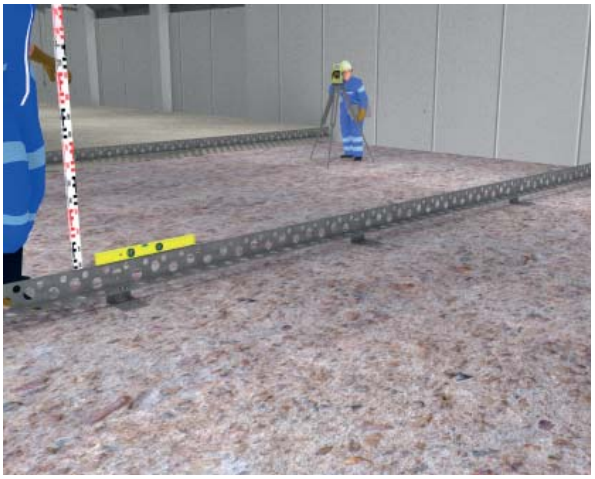
Surface of slab after pouring both sides of screed.

Installing UNIRAIL 70-120 Screed Rails Using the Slotted Feet:

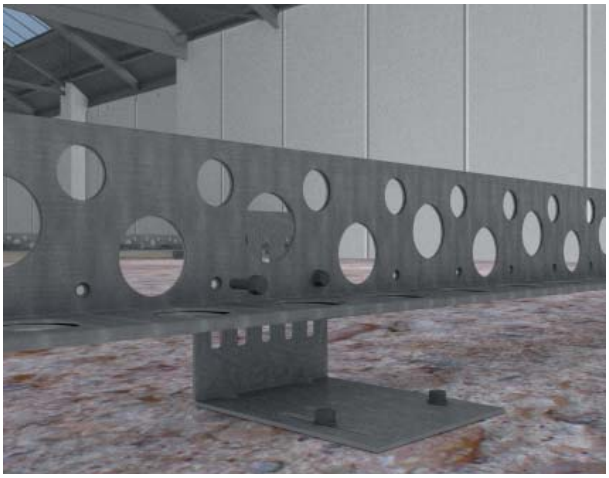
1. Place a stringline or mark out the line the rail is to be installed along.
2. Insert the feet into the Unirail 40-60 Screed rail, at the required fixing distances (recommended at a minimum of 600mm centres) – taking care to choose the appropriate slotted side i.e. either the 40 mm side or the 60 mm side.
3. The feet can be slotted in facing alternate directions, to improve stability at higher settings, or all facing one direction if required.
4. Align the feet with the small screw fixing hole in the rail body (at least one hole per foot), this will make fitting the locking screw easier when the height has been set,
5. Position rails with feet fitted into position on the sub base or slab – screw or nail through the feet into the slab or sub base, making sure that the feet are fixed down securely.
6. Using either an optical sight, or Laser level, with a spirit level, ensure that the rails are levelled at the correct height.
7. Using a self-tapping screw through the small holes provided in the UNIRAIL 40-60 rail (already aligned with a slot in the foot), tighten down and lock off rail at the desired height.
8. Place ties or dowels as required, through the apertures in the rails, ensuring that sufficient are used to withstand the shrinkage forces or transfer the load as required.
9. Simply fill the area between the rails with the screed and strike off level – close the surface of the screed with a trowel or float as required to achieve the desired finish.

Adding feet to UNIRAIL 40-60 to become UNIRAIL 70-120

Adjusting UNIRAIL 70-120 for height using and optical sight level and measuring staff.



Screws in position after leveling to ensure rails are locked at correct level and position.

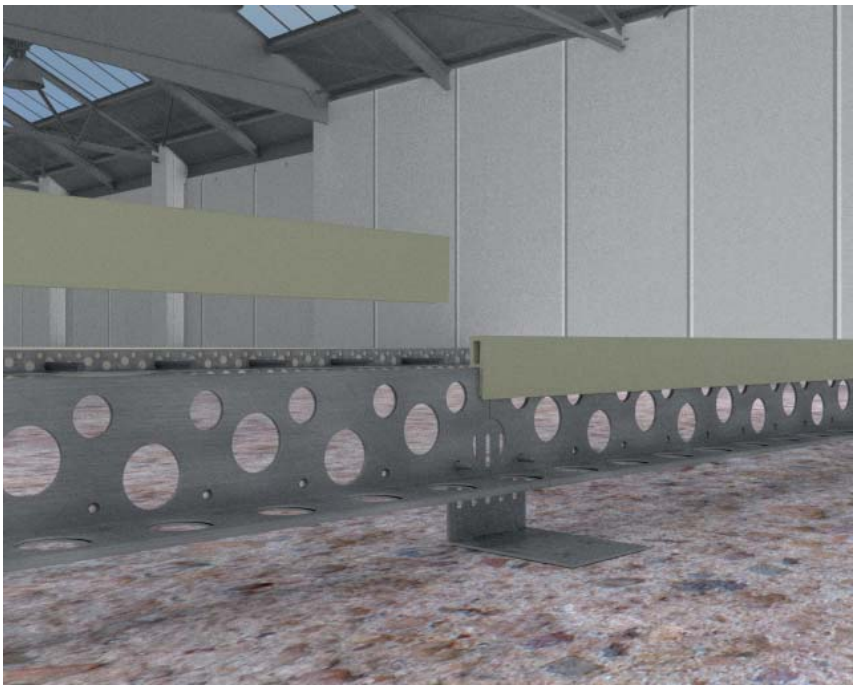


Adding tie bars or dowels if required.

Surface of slab after pouring both sides of screed.

*Addendum: When Plastic TOPEXTENDER is used

The plastic TOPEXTENDER can be installed to the top of the Unirail, simply tap firmly down into position – for best results ensure that the cap is fitted across where the joints butt below, this will smooth out any discrepancies in the installed rails. The TOPEXTENDER can either be removed if required, once the screed has cured, or left in position to be used instead of a joint filler in the finished floor.



PEIKKO GROUP CORPORATION

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Peikko is a family-owned and run company with over 1000 professionals. Peikko was founded in 1965 and is headquartered in Lahti, Finland.