

Universal fine adjustment system RhoFAS G5

// Versatile - Flexible - Precise

RhoFAS G5 – Precision and efficiency at the highest level

// The installation of slab track requires a great deal of precision. The Rhomberg Group has played a leading role in this field over the last fifteen years and ensures the continuation of this success through the continuous development of universal installation methods and equipment that are nevertheless technically and economically efficient. The RhoFAS G5 lift and position system is the logical continuation of this development and sets new standards with respect to accuracy, load capacity, shape stability, versatility and handling.

Functions

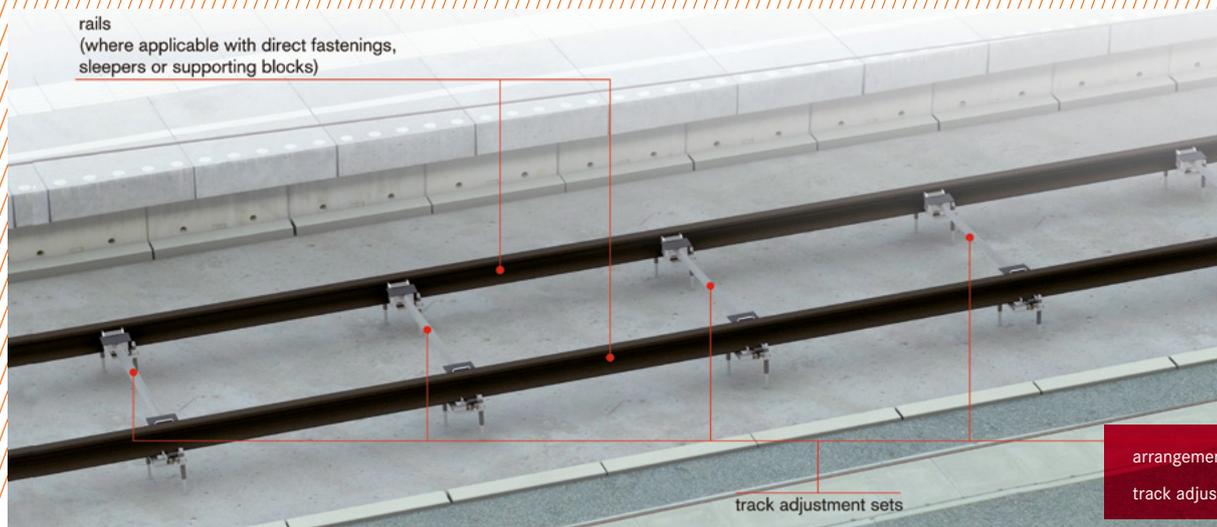
Most slab track systems are built according to the “top-down principle”. In this process the rails are assembled with other superstructure elements (fastenings, sleepers or supporting blocks) to form a track panel. The track panel is then positioned and levelled to millimetre-accuracy, before being cast

in with a flowing, subsequently hardening material (normally concrete) to permanently fix it in the desired position. The RhoFAS G5 sets support the rails at equal spacings and fulfil three functions:

- Precise formation of the track panel by securing the mutual position of both rails (track gauge and rail inclination)
- Precise alignment and hold of the track panel in its correct level, position and superelevation
- The track grid is well supported and can therefore be travelled over by rail-bound vehicles once mounted (depending on the characteristics of the base layer)



laboratory loading tests



rails
(where applicable with direct fastenings,
sleepers or supporting blocks)

track adjustment sets

arrangement of the
track adjustment sets

Construction concept

A track adjustment set consists of three modules:

- **Gauge holder:** This has the primary function of holding the rails at precisely the right distance apart, which can be varied to suit project requirements.
- **Rail fixation units:** Every RhoFAS G5 set has 2 rail fixation units which, together with the gauge holder, determine the exact position and orientation of the rails with respect to one another (gauge and rail inclination).
- **Supporting plate:** The supporting plates are connected by a special mechanism to the rail fixation units and together they form the support and alignment modules of the RhoFAS G5. The track panel is brought to the desired position and height by adjusting the lateral slide bearing and turning the height adjustment bolts. The articulated support of the rails allows a completely stress-free setting of any desired superelevation.

construction of a LVT-track
(Zurich / Switzerland)



Installation

Ease of handling was considered to be very important in the development of the RhoFAS G5. In spite of the substantial stability of the system, the modules are light and compact. The simple, intuitive concept allows the system to be installed reliably and efficiently by one person:

1. Attaching the supporting plates:

The supporting plates are attached at the side on the foot of both rails.

2. Attaching the rail fixation units:

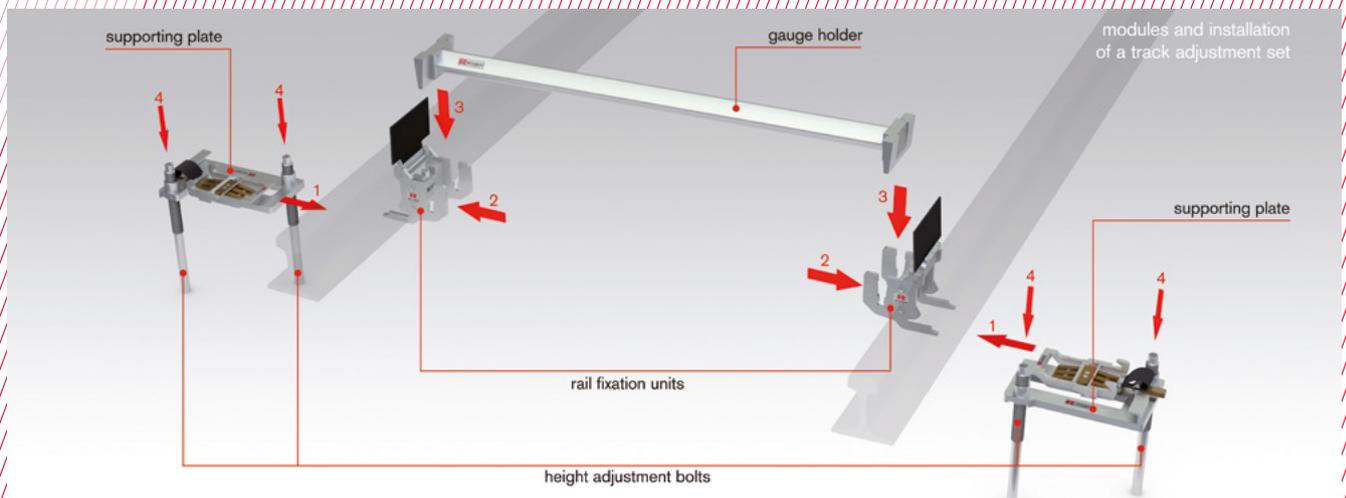
The rail fixation units are pushed and clamped on to the supporting plates. The rails are held solidly in position.

3. Inserting the gauge holder:

The ends of the gauge holder are inserted into the slots in the rail fixation units.

4. Inserting the height adjustment bolts:

Inserting the height adjustment bolts into the supporting plates until they make contact with the supporting surface below gives the track panel the required inherent stability.

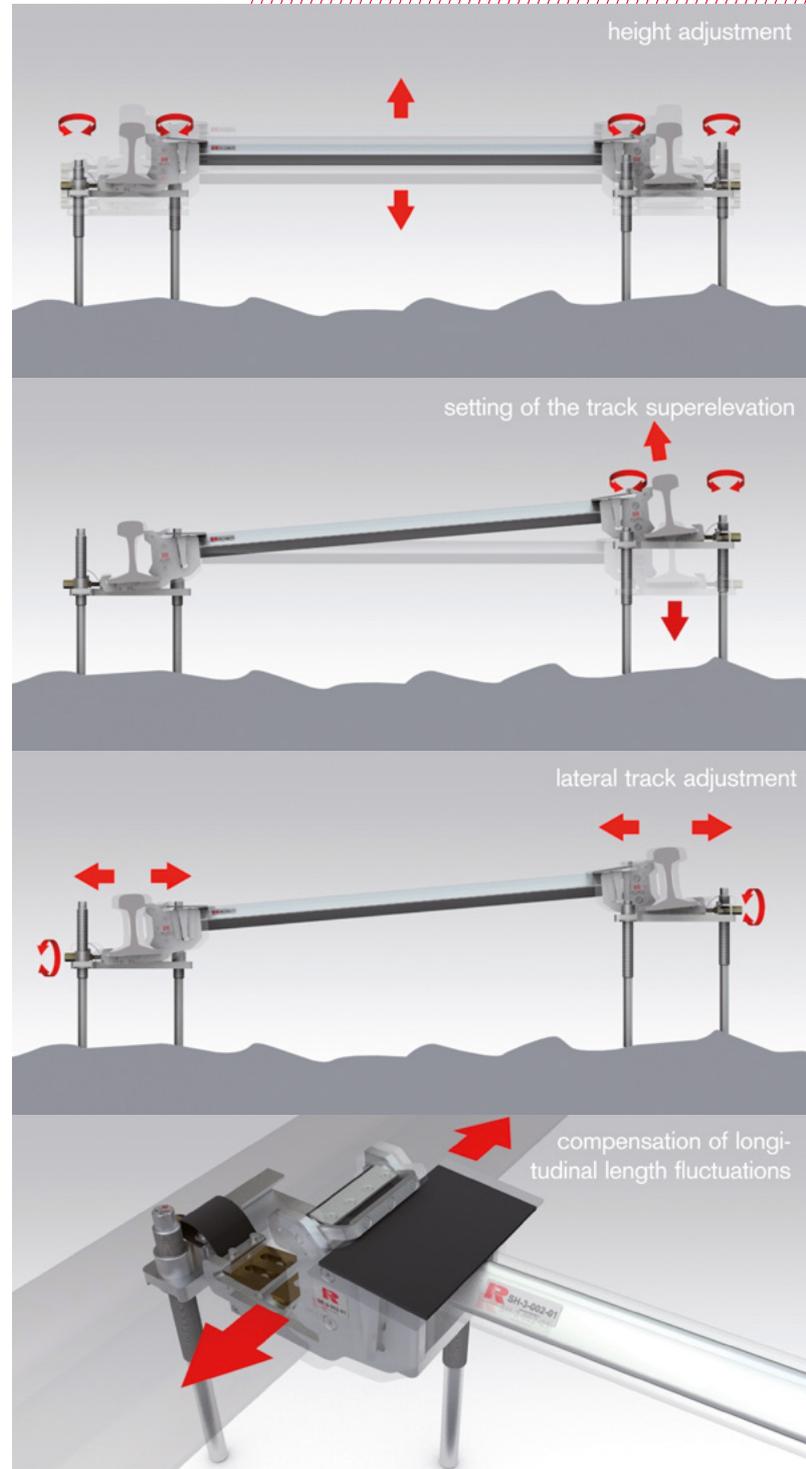


low imposed-stress positioning of the track through analysis and consideration of track behaviour

The adjustment process

Adjusting the track panel using the RhoFAS G5 is done very simply as follows:

- **Height adjustment:** By turning the height adjustment bolts, the level of the supporting plates, and with them the associated attached rails, is set precisely irrespective of the accuracy of installation of the loadbearing layer below.
- **Setting of track superelevation:** The procedure is exactly the same as for setting the level. By turning the height adjustment bolts on one side only, the level of the rail on that side can be set. There are no special things to be considered: Thanks to the articulated bearing of the rails on the supporting plates the transverse inclination of the track panel sets itself completely independent and free of stress, so that no impairment of the gauge or of rail inclination occurs. The same applies to the transverse position of the track panel: as the supporting plates always remain horizontal, even with highly superelevated track, neither the self-weight of the track panel nor the weight of any rail-bound vehicle on it can cause any kind of transverse or horizontal forces, which otherwise could detrimentally affect the set track position.
- **Adjusting the track:** Turning the spindles on the lateral slide bearings at the same time moves the track panel into the desired position. Here as well, the magnitude of the superelevation does not affect the process: the movement is purely a horizontal one, which has no detrimental effect on the level or the superelevation of the track.
- **Compensating for longitudinal displacement:** Special sliding bearings are integrated into the supporting plates which, despite the rails being rigidly attached to a track adjustment set, allow the rails to move along their longitudinal axes without creating any imposed stresses. In a similar way, temperature fluctuations have no detrimental effects on the track panel geometry.



adjustment of a track panel with direct fasteners (Adelaide / Australia)

Track ahead clear for variety in site organisation

// Despite its compact design, highest precision and minimum intrusion into the track construction, the RhoFAS G5 is strong enough to allow a wide range of rail-bound vehicles to operate with the track panel mounted in position. For example, materials can be transported over the mounted track panel as work progresses or special equipment can operate from it. With this system, the contractor is free to organise site operations in any number of ways to suit his work flow and achieve increased efficiency.

use of a concrete dispenser on RhoFAS G5 (Zurich / Switzerland)

RhoFAS G5 at a glance

- **Minimum amount of work involved**

due to precise but quick and easy processes, with sources of error eliminated

- **High-precision installation**

thanks to a low imposed-stress system concept and optimally designed components

- **Wide field of application**

because the requirements of all “top-down track systems” with direct fastenings, supporting blocks and sleepers have been considered in the construction methods

- **Compact design**

based on portable, easy-to-install modules with high load capacities

- **Lightweight, intuitive and simple to use**

because of the practical installation and operating concept (including efficient one-man installation)



- **Minimum intrusion into the track construction**

thanks to the use of slender but robust steel spindles

- **Adjustability**

through extremely simple ways of adaptation to suit project requirements such as track gauge, rail inclination, rail type, installation height etc.

- **High load capacity**

due to articulated and flexible loadbearing concept (no transverse or horizontal forces arising from weight and cant)

- **Can be travelled over in the mounted position**

by a variety of rail-bound vehicles thanks to high load capacity and compact design

- **High shape stability**

through the articulated, flexible and therefore low imposed-stress loadbearing concept without detriment to track gauge and rail inclination

- **Substantial robustness**

and insensitivity to dirt thanks to the integrated protection of all critical moving parts





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