

Offering a full service for turnouts

Plasser & Theurer stands for global expertise in track construction and maintenance. For decades, the company has developed innovative technologies and successfully applied them on-track. To present these technologies to the expert community and introduce them to the market, solid information and client references are essential, as the company explains.

A new offering for ballast cleaning in turnouts

The URM 700-2 universal ballast cleaning machine is the company's new multi-talent for ballast bed cleaning. Unique in the world market, its innovative technology enables Plasser & Theurer to fill a market niche by offering a full turnout service. Most contracting companies do not offer special services such as an on-track turnout maintenance system. Plasser & Theurer has taken its full turnout service to a new level. As a result, Austrian Federal Railways (ÖBB) has been able to use the technology.

Turnouts place particular demands on maintenance. Due to their key function in the track system, they are considered essential infrastructure components. Turnout installations on modern high-capacity lines consist of concrete sleepers, sensitive drive and control systems and heavy rail profiles. When maintaining turnouts, these expensive components must be handled with the utmost precision.

Cost-efficiency is the goal - not only when maintaining plain line track, but even more so when maintaining turnouts which often affects two tracks at the same time. The duration of track closures is a key factor, particularly for main-line railways.

The URM 700-2 offers decisive advantages when managing tight schedules for turnout maintenance. There is no need to remove and reinstall the turnout. Both ballast



cleaning and tamping in turnouts can be completed during one single shift. As soon as the work has been completed, the track section can be reopened for traffic.

For this reason, the ÖBB has opted for employing the Plasser & Theurer system on its priority routes. During maintenance with the URM 700-2, the adjacent track remains open for traffic which reduces track possessions to a minimum. This is impossible when employing conventional methods involving excavators and cranes.

Continuous-action turnout cleaning

Plasser & Theurer's URM 700-2 ballast cleaning machine is the core technology for

The URM 700-2 maintaining two turnouts (EW1200) including a 300 metre section of track on the Western Main Line - crossover point Linz-Jetzing.

turnout maintenance. This machine makes it possible to clean the ballast bed without removing the turnout. Moreover, it allows for continuous working progress. In addition, it cleans the ballast shoulders. The machine is also suited for maintaining large high-speed turnouts with a movable-point frog. Another advantage is that sections of

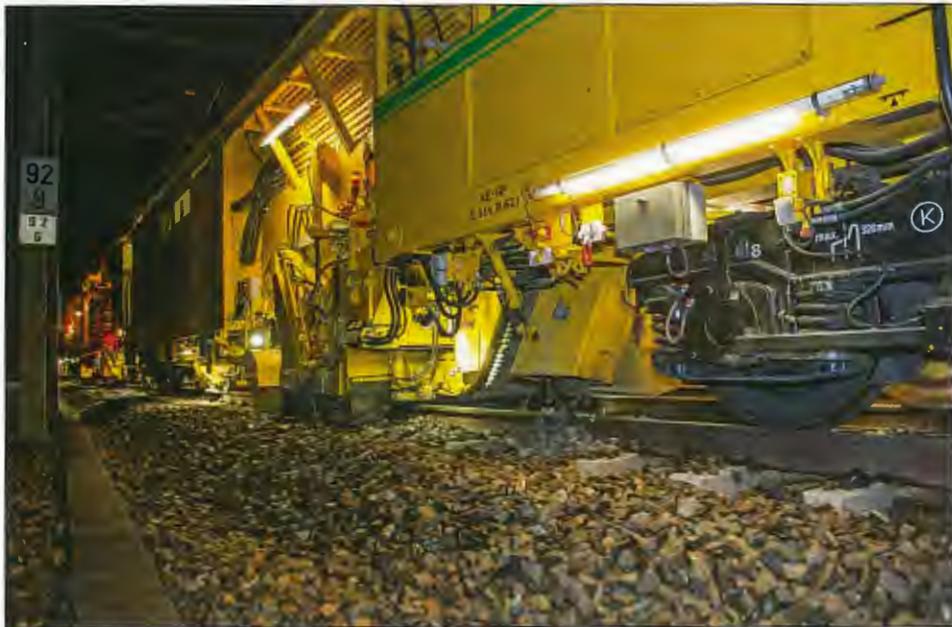
During maintenance work, the adjacent track remained open for traffic with all operating staff being outside the danger zone.





Above: The turnout can be maintained in one single pass. After removing the shoulders, ballast is excavated from under the sleepers over a variable width.

Below: Placing ballast, the Plasser & Theurer Unimat 09-475/4S N-Dynamic all-in-one maintenance machine in operation.



track at connecting tracks and between turnouts can be cleaned in one pass.

Thanks to the fast and independent installation and removal of the excavating unit, the URM 700-2 works cost-efficiently on short sections of track with:

- Short set-up times.
- No need to cut the rails, neither at the start nor at the end of work.
- No full track closures - the time required for ballast cleaning in turnouts is reduced significantly.

This is exactly what railway administrations require: fast, safe and high-quality ballast cleaning in turnouts without long track possessions.

Optimal results for many trains to come

After the URM 700-2 has completed its work, Plasser & Theurer's all-rounder for track maintenance enters the picture to ensure optimal geometrical quality of the turnouts. The Unimat 09-475/4S N-Dynamic turnout and track maintenance machine combines the functions of three machines: three-rail lifting and four-rail tamping, profiling, stabilising and

control measuring. A unique feature makes the Unimat 09-475/4S N-Dynamic stand out - it can also ballast the tamping zones. Full turnout service including the ballasting step can be performed within a single-track possession.

Traffic on the adjacent track continues without interruption, which minimises operational hindrances.

Cost-efficiency - comparing methods of work

The URM 700-2 makes ballast bed cleaning and ballast exchange in turnouts even more efficient. The machine's main advantage is that it reduces construction time considerably, making it particularly interesting for infrastructure operators. The URM produces consistently high work quality and reduces the cost of turnout maintenance. Shorter construction times increase the network availability, which translates into fewer delays. Ultimately, this gives rise to greater acceptance for the railway system.

In a practical experiment, Plasser & Theurer compared the cost-efficiency of various work processes:

- Ballast exchange using an excavator and removing the turnout.

- Ballast bed cleaning with the URM 700-2.

The construction site used in the experiment consisted of four turnouts with concrete sleepers. The radius of the adjacent track was 1,200 metres including the closure panels and the small areas around the connecting track that serve as transitions to plain line tracks.

The results show that the URM 700-2 has unbeatable cost-efficiency:

- Use of the URM 700-2 reduces construction times and track closure periods by more than 57% when compared to conventional methods.

- Use of the URM 700-2 for ballast bed cleaning in turnouts reduces costs by approximately 17.5%.

This comparison does not take into account additional reductions in traffic hindrance costs and construction site safety costs as a result of shorter construction times.

Shorter track closure periods by using the URM



Savings potential approx. 57 %

Construction cost savings by using the URM



Savings potential approx. 17,5 %