



Enabling Future Mobility

Ballast Services and Solutions

// One fleet. One team. One integrated solution.

**RHOMBERG
SERSA**

RAIL
GROUP

The Rhomberg Sersa North America difference.

Rhomberg Sersa North America combines trackbed assessment, specialist equipment, material logistics, production management and final track restoration to deliver the right ballast-maintenance solution for the railroad, the possession and the work scope.

Content

THE RSNA ADVANTAGE

BALLAST UNDERCUTTING

MATERIAL HANDLING & LOGISTICS

PRODUCTION TAMPING & STABILIZATION

THE COMPLETE PRODUCTION SYSTEM

ONE FLEET. ONE TEAM. ONE INTEGRATED. SOLUTION.

Ballast maintenance, engineered around the track

// Ballast maintenance is not a single-machine activity. Effective rehabilitation requires an understanding of trackbed condition, the right intervention, efficient removal and management of fouled material, controlled ballast supply and distribution, geometry restoration and stabilization.

1

Flexibility

Individual machines, selected combinations or a complete production system.

2

End-to-end delivery

Equipment, operators, logistics, production management and technical capability.

3

Right machine

Kershaw 42 targeted applications through to RM76 and RM80 UHR undercutters and 09 3X Dynamic tamper providing flexibility, high-production and quality.

4

Material control

MFS, SPW, NBPW, BDS and Yard Cleaner capabilities configured around the production requirement.

Trackbed assessment

// Understand the trackbed before selecting the intervention

Ground Penetrating Radar

- Ballast fouling and clean ballast thickness measurement
- Mudspot development
- Formation and subgrade erosion / failure and ballast pocket detection
- Moisture likelihood analysis

LiDAR

- Drainage mapping
- Ballast volume measurement
- Terrain and asset mapping
- Vegetation and clearance mapping

2D / 3D Vision

- Surface mud spot mapping
- Tie type and condition mapping
- Tie spacing and skew
- Fasteners mapping

Track Geometry and Infrastructure

Assets information (Client Third party supplied)

Understand the trackbed before selecting the intervention. RSNA integrates condition data into actionable maintenance planning, so the intervention, equipment and resources are matched to the actual trackbed requirement.

Expedited Reporting

- Near real time exception reports
- On demand processing
- Priority alerts and critical findings

Integration and Analysis

- Integration with existing asset and maintenance management information and systems
- Customized reporting inc. track charts
- Condition assessment reports

Actionable Intelligence

- Maintenance priority scheduling and automated work orders
- Performance trend analysis
- Customized recommendations for operational optimization

Monitor

Track Performance / Degradation

Quality control

Maintenance Inspection

Planning

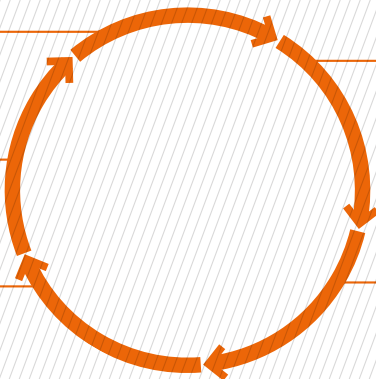
Targeted Investment & Planning of Work

Audit

Trackbed Condition Baseline

Maintenance

Identify Best Maintenance Solution



Three complementary platforms. One flexible capability.

// With one of the largest and most modern fleets of ballast undercutters in North America, RSNA provides three complementary levels of ballast rehabilitation capability: the Knox Kershaw Model 42, RM76 UHR and RM80 UHR. This range allows RSNA to select the appropriate machine according to location, access, ballast condition, excavation requirement, production target, possession duration and overall project economics.

Kershaw 42

Targeted
rehabilitation



Kershaw 42

Including switches, turnouts, mud spots, drainage interventions and restricted-access locations.

RM76 UHR

Flexible deployment
& production



RM76 UHR

A highly versatile production platform designed to maximize productivity across variable ballast conditions, constrained work windows and specialist applications, including urban environments.

Selecting the right platform
The RM76 UHR and RM80 UHR should be viewed as complementary production assets, providing the flexibility to match the right machine to the requirements of each project.

The RM76 UHR provides a highly versatile and proven production platform, particularly well suited to projects where access, possession length, track configuration, site constraints or excavation requirements demand a flexible solution.

RM80 UHR

High-production
rehabilitation



RM80 UHR

RSNA's high-capacity production platform for major ballast rehabilitation programs, with adjustable cutting, screening and integrated material-management capability.

The RM80 UHR provides higher production capacity and is ideally suited to longer-duration, high-volume ballast rehabilitation programs where sustained production and throughput are the primary drivers.

Together, the two platforms provide a flexible production capability, allowing the machine configuration to be optimized for the operating environment, project requirements and required production outcome.

Kershaw 42 Switch & spot undercutter

// Targeted ballast rehabilitation for switches, turnouts, mud spots, drainage interventions and restricted-access locations.



Kershaw 42

The Model 42 Switch & Spot Undercutter provides a compact, maneuverable and rail-bound solution for targeted ballast excavation where a full-production ballast cleaner or undercutter is not appropriate.

- Mud spot remediation
- Excavation adjacent to fixed structures
- Drainage interventions at tie ends
- Restricted-access locations and localized fouling
- Road transportable; up to 35 mph (56 km/h) on-track travel
- Integrated turntable for bi-directional maneuvering
- Main and side spoil conveyors
- Spoil discharge to cess or spoil cars
- Can pull a single ballast car

Key capabilities

- Self-ditching / dig-in capability
- Road-travel deployment
- Forward and side waste conveyors
- Up to 300 ft/h, condition dependent
- Single-person machine operation

RM76 UHR

Flexible deployment & production

// Flexible production capability for moderate-output work, shorter possessions, variable ballast conditions and specialty or urban applications.



RM76 UHR

The RM76 UHR combines productivity with flexibility within areas where conformance with infrastructure clearance requirements is important. The RM76 has a average production capability of 800 ft/h (244 m/h) and is suited to projects with restricted-access locations and where single line working is required when combined with RSNA MFS cars in the collection and removal of spoil.

- Standard three-finger cutting chain height: 210 mm (8.3 in)
- Two selectable chain speeds
- Three-level vibrating screening with adjustable screen sizes
- Approx. 71 metric t (156,500 lb. / 78.2 US short tons) historical machine weight
- Approx. 40 km/h (25 mph) self-propelled speed
- Approx. 30 km/h (18.6 mph) train-formation speed
- Plain track and turnout capability where appropriately configured
- MFS-compatible material handling

RM80 UHR

High-production ballast rehabilitation

// High-capacity production undercutter for major ballast rehabilitation programs where excavation, screening and material flow drive possession productivity.



RM80 UHR

The RM80 UHR is RSNA's high-capacity production platform for major ballast rehabilitation programs and our three newest machines have an average production capability of 1,250 ft/h (381 m/h), subject to ground conditions. Our machines have the ability to switch to full waste mode where ballast screening using the three-screen deck shaker box is in practical. Similar to the RM76 the RM80 can also be integrated with RSNA's ballast and material management MFS system.

- Five-finger cutting chain for higher material movement and productivity
- Excavation 10 in (254 mm) beneath the tie in a single pass, subject to conditions
- Three-screen ballast screening with 270 ft² (25.1 m²) screening surface
- Standard screen sizes of 2½ / 1½ / ¾ in (63.5 / 38.1 / 19.1 mm), configurable
- Average production above 1,250 ft/h (381 m/h), subject to ground conditions
- New-ballast management and MFS integration allowing ballast to be delivered to track during undercutting

Protecting production through controlled material flow

// Undercutting production can only be sustained when excavated material is continuously managed, replacement ballast is available when required, and the material-handling system keeps pace with production.



// The MFS and Power Wagon equipment does not have to be deployed as one fixed MHDT train. RSNA can configure the equipment around the worksite and production objective. Individual MFS units can provide storage or transfer capacity; SPW/PW units can provide powered movement and spoil transfer; NBPW/N-PW can support new-ballast movement; or the units can be combined into a complete consist to support continuous RM76/RM80 undercutting.

MFS 40 D/SB. Mobile material storage & transfer

Modular material-handling units providing continuous storage, conveying and transfer for spoil and ballast within the production system.

Key capabilities

- 41 yd³ (31.35 m³) hopper capacity
- 66 ft 3 in (20.19 m) car length
- 196,000 lb. maximum laden weight
- Direct and side-belt transfer capability
- Can be configured with SPW / NBPW

SPW / NBPW

Spoil management and new ballast supply.
Powered movement.

Key capabilities

- Power Wagon transfer capacity: 1,177 yd³/h (900 m³/h), as supplied
- Working speed with MFS: 1.25 mph (2.0 km/h)
- Working speed without MFS: 12.4 mph (20.0 km/h)
- Maximum hauled MFS units on level track, dry conditions: 22
- Transfer speed, hauled: 62 mph (99.8 km/h)

BDS 100 / BDS 200

Ballast recovery & redistribution

// Ballast-management equipment designed to recover suitable existing ballast and redistribute it where the track requires additional material.



Ballast collection, storage & redistribution

The BDS 100 / BDS 200 can recover surplus ballast from the track, transfer and store the recovered material, and redistribute it where required. This allows existing ballast resources to be managed across the network optimizing existing investment in ballast.

- Collect surplus ballast
- Receive and store recovered material
- Convey and transfer ballast
- Redistribute ballast to areas of deficiency
- Profile ballast as part of the distribution process
- Integrate with MFS/NBPW material supply where required and can support 09 3X D tamping operations

Kershaw yard cleaner

Targeted material management

// Purpose-built for accumulated ballast, dirt, aggregate and other material in yards and track, providing targeted cleaning without deploying a full production ballast cleaner.



GATHER

Side wings and gathering components direct material toward the cleaning system.

BREAK UP

Mechanical action loosens compacted and accumulated material.

PICK UP

The conveyor system transfers material away from the working area.

DISCHARGE

Material is discharged to the side or into a spoil / material car.

The RSNA service solution

Rhomberg Sersa North America combines proven Kershaw yard-cleaning technology with North American railroad operating experience, ballast-maintenance capability and material-handling expertise.

- Machine and qualified operating personnel
- Flexible service options from Full-service yard-cleaning operations to Operator-only service options
- Material-handling and spoil-car integration
- Material removal and disposal coordination
- Conveyor-based material transfer
- Side discharge or spoil-car loading
- Road transportable

From ballast rehabilitation to completed track

// Continuous-action three-sleeper tamping and stabilizing platform for geometry restoration and final track re-establishment following ballast rehabilitation.



// Ballast rehabilitation is not complete when the undercutter leaves the track. The track must be returned to the required geometry, the ballast consolidated and the completed work verified.

09-3x Dynamic Production Tamping & Stabilization

The 09-3X Dynamic provides a continuous-action three-sleeper tamping and stabilizing platform for plain-line track. Current OEM information states a working output of up to 2,200 m/h (7,218 ft/h). Dynamic stabilization consolidates the ballast after lifting, lining and tamping, helping reduce initial settlement associated with a freshly disturbed ballast bed and supporting improved resistance to subsequent track distortion.

- Three sleepers tamped simultaneously
- 1-sleeper mode for obstacles or irregular spacing
- Automatic sleeper detection / sleeper-position control
- SmartALC geometry-guiding computer
- Integrated dynamic track stabilization
- Maximum self-propelled transfer speed of 100 km/h (62 mph)

Key capabilities

- Up to 2,200 m/h (7,218 ft/h), subject to conditions
- Three-sleeper tamping
- Geometry measurement, lifting and lining
- Dynamic track stabilization
- Final geometry restoration and verification

Engineered around the output — not the machine

// Individual machines become most valuable when configured around a common production objective. RSNA connects assessment, ballast rehabilitation, material logistics, ballast management, geometry correction and stabilization into a coordinated production system.

ASSESS

- GPR
- LiDAR
- VISION
- GEOMETRY

SELECT & PLAN

- INTERVENTION
- EQUIPMENT
- LOGISTICS

REHABILITATE

- KERSHAW 42
- RM76
- RM80

MANAGE

- MFS
- SPW
- NBPW
- BDS
- YARD CLEANER

RESTORE

- 09-3X DYNAMIC

VERIFY

- COMPLETED
- COMPLIANT
- READY FOR SERVICE

THE RSNA DIFFERENCE.

We don't simply provide machines.

We engineer and deliver the right combination of equipment, people and capabilities to solve the railroad's ballast-maintenance requirement from end to end.

One fleet. One team. One integrated.solution.



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