RAILWAY SYSTEMS
by voestalpine

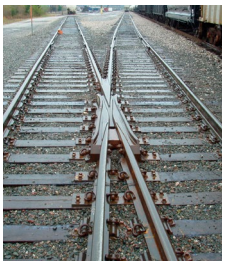
# FROG PORTFOLIO

**voestalpine Railway Systems Nortrak**
www.voestalpine.com/nortrak

voestalpine
ONE STEP AHEAD.

From standard yard applications to North America's technologically advanced high speed mainline application, Nortrak is the frog specialist.

# SOLID SELF GUARDED MANGANESE FROGS (SSGM)



Solid Self Guarded Maganese Frogs (SSGM) for use in standard yard applications, are a proven work horse of the rail industry. SSGM frogs can be manufactured to standard AREMA requirements or optimized with flange bearing properties and tapered rail connections to increase component life. This optimization, our Partial Flange Bearing Frog, is a hybrid of a conventional self-guarded frog and a pure flange bearing frog. Depending upon wear profile, wheels traverse the frog in either tread or flange bearing mode. The distribution of wheel loading yields significant improvement in frog life.

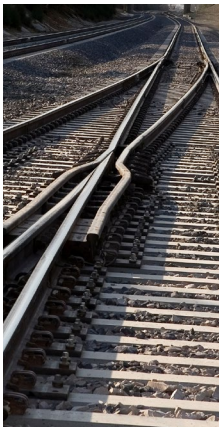
### Features and Benefits

- Designed for yard, terminal and transit applications
- Robust solid manganese body
- Universal toe/heel rail
- Reduced point impact
- Reduced point wear
- Reduced noise and vibration

Other:

- Full Flange Bearing Frogs also available

# MOVEABLE POINT FROGS (MPF)



Moveable Point Frogs (MPF) add a second throw device to a turnout and are economically viable in high density traffic. They provide impact elimination, noise reduction, very low maintenance and long life because of the continuous running surface. The two distinct designs Nortrak has produced in abundancte in North America are the forged billet Vee Point and the Long Point/ Short Point with slip movements.

### Features and Benefits

- Proven in the worlds' heaviest traffic situations
- The lowest maintenance cost of any frog
- Impact reduction eliminates the need for weld build-up
- Forged Vee Point and Long Point/Short Point Designs
- Riveted connections on Long Point/ Short Point Designs
- Controls and resists the problem of thermal stress in CWR
- Made in North America for heavy haul traffic
- Standard designs for #6 through #32.7 MPF's in 115RE, 141RE, 132RE, 133RE and 136RE lb. sections
- Buy America Compliant

# JUMP FROG

voestalpine Nortrak's Jump Frog is ideal for applications with low tonnage and low speed on the diverging route. Design incorporates a continuous running rail on the through route and flange bearing ramps on the diverging route.

### Features and Benefits

- Eliminates impact loading on through route.
- Reduces noise and vibration
- Reduces maintenance, robust design uses high solidity manganese/EDH; no moving parts; not affected by thermal CWR stress.
- Designs can be adapted to any North American freight and transit requirements; available in 115, 132, 133, 136 & 141 lb. sections and provides the best economy in No.'s 6 through 14.

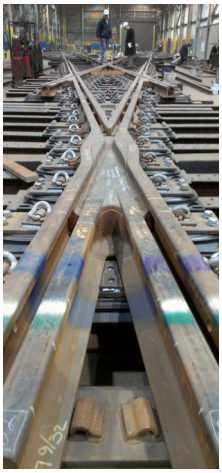
# RAIL BOUND MANGANESE FROGS (RBM)

Rail Bound Manganese Frogs (RBM) are manufactured to meet or exceed all AREMA requirements. This is the most common frog used on both freight and passenger systems.

### Features and Benefits

- Explosive Depth Hardening (EDH) to exceed 52 BHN
- Frog plates available with standard or elastic fasteners and multi-tie configurations
- Hi-Solidity in all RBM designs and some solid designs
- Radio graphically tested when specified
- Competitive prices

# RAIL BOUND WELDED FROGS (RBW)

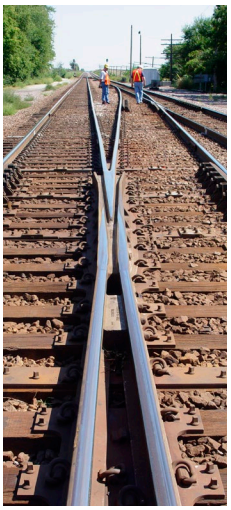


Rail Bound Welded Frogs (RBW) consist of a solid manganese body similar in footprint to the RBM with the difference being that the heel rails are flash butt welded to the casting. This core is 'sandwiched' between two bolted wing rails. The continuous transition across the welded heel of the frog greatly reduces impacts resulting in smoother rides, prolonged life and less maintenance.

### Features and Technical Specifications

- Tough manganese steel core
- Welded "No Impact" heel design
- Reinforced heel
- Meets or exceeds all AREMA specs
- Explosion hardened to exceed 352 BHN (if specified)
- Welded Heel configuration

# WELDED BOLTLESS MANGANESE FROGS (WBM)



voestalpine Nortrak's Welded Boltless Manganese Frogs (WBM) eliminate all rail joints on the frog providing a continuous running surface unaffected by CWR stresses. This design is used in Class 1, heavy haul service and all passenger rail environments from Streetcar to Commuter Rail due to the smooth transitions and reduced maintenance. This frog design with "flange bearing" properties has been used extensively in embedded applications for LRT and Streetcar.

### Features and Benefits

- Uses Nortrak Hi-Solidity explosive depth hardened (EDH) manganese steel
- Common footprint with RBM frogs
- Reduced maintenance
- Frog base cast to rail base profile to simplify plating
- Elimination of bolted joints and rails
- Uses bonded, bolted heel and toe blocks

# SPRING FROGS

voestalpine Nortrak has become a preeminent manufacturer of Spring Frogs since the resurgence of the design in the mid 90's. Subsequently we enhanced the design by incorporating a manganese body (Rail Bound Manganese Spring Frog) and further improvement by welding the heel rails and rigid wing to the manganese body on our Welded Spring Manganese (WSM) design. These design improvements serve to prolong the frog life by replacing rail, block and bolt assemblies with wear resistant manganese and flash butt welds. Additional enhancements can be obtained with options like multi-tie base plates, friction reducing inserts, retarders and other spring wing control devices.

### Features and Benefits

- Uses High-Solidity explosive depth hardened (EDH) manganese steel
- Continuous running surface
- Large multi-tie base plates
- Reduced maintenance
- Low Impact