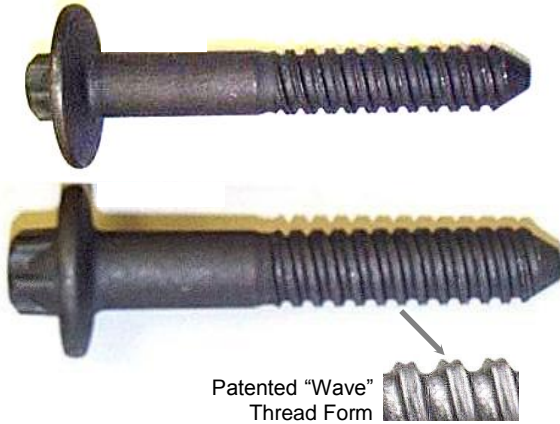




Specifications

AJAX Rail Screws are designed for a max 25 tal timber rail track. They offer cost effective, superior performance and are easier and safer to install than dog spikes or coach screws.



Patented "Wave" Thread Form

- Typical insertion in 2.5 seconds achieved with existing pneumatic drivers into holes drilled using augers.
- Installation kits which include sockets and their adaptors are available from AJAX.
- Suitable for automated insertion.
- Modified 19x135 screws are available to suit 22 mm holes in NSW plates.

- 16x125 mm, phos-oil coated (galvanic zinc available).
- Suited to 15.75 tal and 20 tal traffic on plated & unplated tangent track.
- 41 mm diameter flange, 18 mm 6 lobe head.

- 19x135 mm, phos-oil coated (galvanic zinc available).
- Suited to 15.75 tal and 25 tal traffic on plated & unplated tangent track.
- 41 mm diameter flange, 22 mm 6 lobe head.
- The screw's high lateral force resistance makes it suitable for use in curved track.

- 41 mm diameter flange with a curved shape provides optimum contact.
- A six-lobe head allows greater installation torques, and reduces the chance for slip or damage.
- The patented "Wave" thread form provides easy insertion, safe handling and reduces damage to timber.
- The standard insertion procedure generates over 10 kN of clamping force per pair of screws.

Enhancements

Cost Benefits AJAX Rail Screws offer cost benefits over spikes because of the "Wave" threadform. This enhances the useful life of timber sleepers by both reducing the effect of spike kill and the need for maintenance.

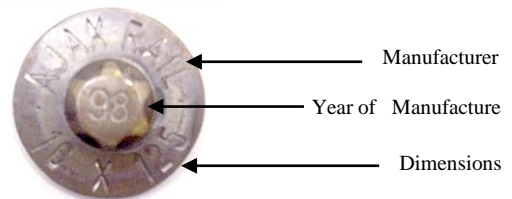
Quality Assurance and Traceability procedures conform to the Australian Standard Suppliers Quality System, AS3902-1987/ISO 9002-1987. This

- assures that the product is manufactured under controlled conditions
- provides total traceability of all stages of the manufacturing process. Traceability is provided by the QA number on each packet label.

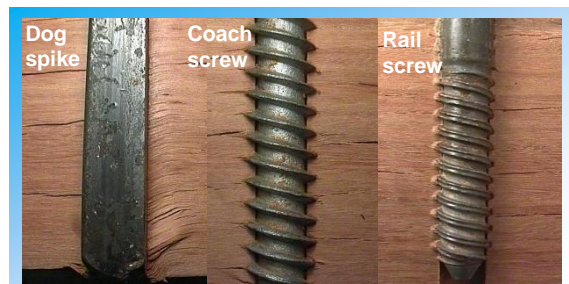
Corrosion Protection AJAX Rail Screws are supplied standard with a phos-oil coating. This provides corrosion resistance to ensure optimum insertion performance. A dry environment is recommended for long term storage.

PRODUCT ID

Head markings allow easy identification of the manufacturer, year of manufacture, fastener application, thread diameter and length. These markings guarantee the quality of product.:



Thread-Timber Interaction The comparative visualisation shown below demonstrates that much timber fibre damage is caused spikes and very little by rail screws.



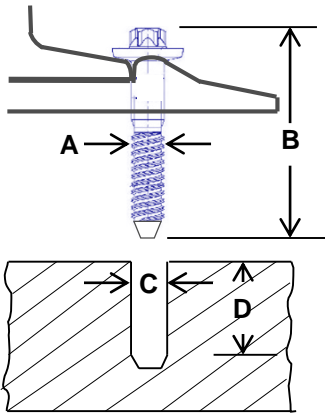


Application

Recommended Hole Dimensions:

For 16x125 mm 14 mm diameter, 90 mm min depth for plated track, 95 for unplated track.

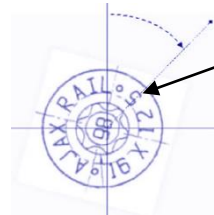
For 19x135 mm 17 mm diameter, 100 mm min depth for plated track, 105 for unplated track.



Hole Preparation			
Railscrew Dia	A	16mm	19mm
Railscrew Length	B	125mm	135mm
Drill Hole	C	14mm	17mm
Well Depth	D	95mm	105mm

Insertion

- Track trials have demonstrated that operators using their existing 100-300 psi. pneumatic drivers very quickly develop a suitable technique for installing screws.
- The dramatic slowing of insertion speed and change in the driver's sound provides good indication to the operator to stop the insertion.
- Slack between the sleeper and rail base is taken up before the screw tightens, removing the need for this extra task.
- Screws are tightened adequately using $\frac{1}{8}$ th of a turn.



For example, "5" is at the 12 o'clock position at contact.

Performance

Lateral Fatigue Tests completed 3×10^6 cycles. 16 and 19 mm screws were subjected to 20 tal loads in plated and unplated 55 kg tangent track (ie. 24 kN lateral & 62kN vertical loads max; a load range of 6-71 kN was applied at $0.4 L/V$).

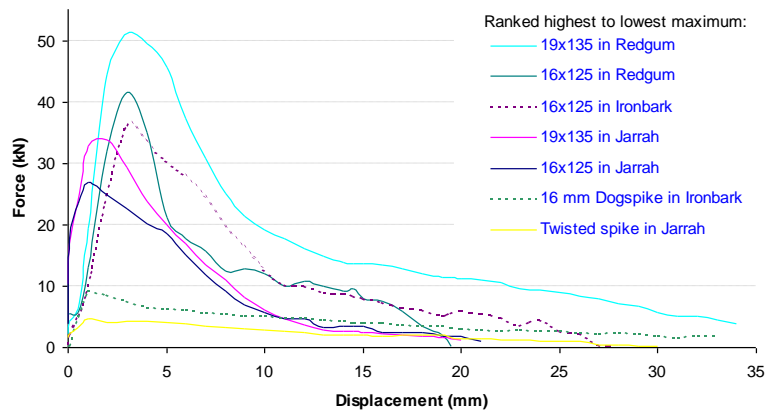
Comparative tests subjected a 16 mm rail screw and a 16 mm dogspike to 20 tal loads in unplated 55 kg curved track (62 kN lateral, 72kN vertical; a load range of 6-72 kN applied at $0.9 L/V$.) Results demonstrated that the rail screw-timber interface has much greater lateral restraining performance than the dogspike-timber interface. This is due to the threadform anchoring the screw in place and causing less timber damage.

Vertical Fatigue Tests completed 3×10^6 cycles. 16 and 19 mm screws subjected to vertical uplift loads in plated and unplated 55 kg tangent track (a load range of 2-20 kN applied at to track restrained by 4 screws).

Crack formation checks were performed on all of the above test samples using die penetration and magnetic flux techniques. Results indicated no sign of cracking.

The above tests where performed by independent laboratories including BHP Rail Research.

(Holding Force) Extraction characteristics in various timbers



Insertion Characteristics in Various timbers

