Onspot vs. alternatives

Conventional snow chains

Textile tire socks

Sand spreader

4x4

4x4

Comparing methods to increase traction

For optimizing productivity in the supply chain, timely deliveries are crucial. The possible consequences from delays could be anything from ‘just annoying’ to ‘devastating’. Ultimately, delays can result in profit loss and damaged reputation for the transporter.

Many reasons for delays are strictly coincidental while others actually are predictable, and appropriate precautions can be taken to reduce or avoid the delay. One such reason for possible delays is slippery roads due to icy and snowy weather conditions.

When there is a risk of roads being slippery, there are several methods to increase traction for obtaining acceptable driving speed, and avoid getting stuck. This will in turn reduce delay times. However, the different methods have different qualities – and drawbacks. No single method is preferable in all circumstances. Instead, different considerations will indicate which method is optimal according to the needs. Such considerations could be driver’s safety and well-being, investment cost, reliability and durability, maintenance cost etc.

	 Onspot	 Conventional tire chains	 Textile tire socks	 Sand spreader	 4x4
Type of vehicle					
Commercial Trucks	✓	✓	✓	✓	✓
Tractor Trailer	✓	✓	✓	✓	✓
Ambulance	✓	✓	✓	✗	✓
Fire and Rescue	✓	✓	✓	✗	✓
School Buses and Coaches	✓	✓	✓	✗	✓
Snow and Ice Removal	✓	✓	✓	✓	✓
Yard Tractor	✓	✓	✓	✓	✓
Utility Truck	✓	✓	✓	✓	✓
Road conditions					
Ice	✓	✓	✓	✓	✓
Light Snow	✓	✓	✓	✓	✓
Heavy Snow (>6in / 15cm)	✗	✓	✓	✗	✓
Automatic	✓	✗	✗	✓	✓
Manual Mounting	None	>15min	<15min	Sand refills	None
Weight	<150lbs (70kg)	<150lbs (70kg)	<150lbs (70kg)	>150lbs (70kg)	>150lbs (70kg)
Maintenance	Low	Low	Low	High	Low

Automatic Tire Chains

The Onspot Automatic Tire Chain System is an uncomplicated yet very reliable solution for increasing traction. It is a chain wheel attached to a swingable arm that in turn is permanently mounted at an air cylinder on the vehicle.

When it is engaged, the air power cylinder swings the arm so the chain wheel gets contact with the drive wheel. The contact between the tire and the chain wheel causes the chain wheel to rotate, creating enough centrifugal force to swing the chains out in front of and under the tire. In this way traction is increased similar to conventional tire chains. When the system is disengaged the arm swings back the chain wheel to its resting position.

The system is engaged (and disengaged) while driving. It is conveniently controlled from a switch on the dashboard so the driver doesn't have to leave the cab.

Service, maintenance and consumption

Onspot Automatic Tire Chain System requires very little maintenance. Typically, engaging the system occasionally – in order to keep the bearings in good condition – is sufficient.

Pros

- Permanently mounted – always ready to use
- Activated by switch – driver stays in cab
- Weight optimized
- Durable and reliable
- Custom fit – simplified installation and long product life
- Works forward, in reverse and together with ABS braking
- Activated and operated without having to stop the vehicle – up to 35 mph (50 km/h)
- Reduces braking distance
- Only used when required – chains last longer

Cons

- Does not work when the chain wheel cannot spin freely (e.g. off-road)
- Reduced effectiveness in deep snow
- Max speed 35 mph (50km/h)

Conventional tire chains

Conventional tire chains are a set of metal chains that are attached to the drive wheels to increase traction. They must be matched to a particular tire size (tire diameter and tread width). Fitting to the tire is very important. Poorly fit – or poorly mounted – tire chains may come lose and damage the vehicle.

Service, maintenance and consumption

Conventional tire chains are service and maintenance free.

Pros

- Simple and well-tried design
- Durable
- Works in virtually all snow and ice conditions
- Fits all vehicles
- Locally available in most regions
- Works forward, in reverse and together with ABS braking
- Reduces braking distance

Cons

- Heavy and time-wasting manual mounting
- Limited speed
- Driver must leave the cab to mount
- Driver must leave the cab to dismount
- May cause damages on vehicle if not mounted properly

Textile tire socks

Textile tire socks are designed as a temporary winter traction aid. They increase tire to road grip and traction when driving under adverse winter conditions. Compared to conventional snow chains textile tire socks are quick and easy to mount. However, due to their textile nature they should be dismounted immediately on dry roads – otherwise they will wear down very quickly. Also, they must not be left mounted when the vehicle is parked because if the sock freezes to the ground it might shred when the vehicle starts moving.

Service, maintenance and consumption

Textile tire socks are service and maintenance free. However, due to textile wear and tear they need to be entirely replaced often compared to more robust solutions e.g. tire chains.

Pros

- Extremely light weight and easy to store
- Easier to mount compared to conventional snow chains
- Works forward, in reverse and together with ABS braking
- Reduces braking distance

Cons

- Does not withstand dry road surfaces e.g. asphalt
- Risk of shredding if frozen to the ground
- Must be removed immediately if road is dry
- Driver must leave the cab to mount and dismount
- Max speed 35 mph (50 km/h)

Sand spreader

A typical sand spreader is permanently mounted on each side of the vehicle and consists of a sand container and a delivery system. It is manually operated by the driver and feeds sand in front of the drive wheels to increase traction. If the sand freezes it cannot be delivered. To avoid this some systems also include a heater. An advantage of using sand is that it is effective also for a trailer. The sand spreader has a limited operating distance of approximately 1 mile (1,5 km).

Service, maintenance and consumption

The service and maintenance need for the sand spreader as such is limited. However, sand (of correct quality) is consumed and must be refilled at regular intervals.

Pros

- Permanently mounted and ready for use
- Activated by switch – driver stays in cab
- Reduces braking distance
- Sand distribution is also effective for the trailer

Cons

- Effectiveness and reliability is depending on the sand quality
- Bulky and heavy (sand weight)
- Requires regular sand refill (manual)
- The sand can freeze then requires heating to work
- Does not work in reverse
- Limited operating distance – approx. 1 mile (1.5km)
- Ineffective when sand container is empty
- Environmental impact – Not permitted in all countries

4x4

4x4

4x4 is a system that provides power to all four of the vehicle's drive wheels. Some systems are engaged electronically or manually by the driver, while others are permanently active. Individual systems have specific requirements and/or restrictions for vehicle speed and activation parameters.

Service, maintenance and consumption

4x4 is service and maintenance free. However, vehicle fuel consumption is increased.

Pros

- Works in adverse terrain conditions
- Permanently mounted – always ready to use
- Activated from the cab
- No max speed (in general)

Cons

- Expensive
- Heavy
- Decreased fuel efficiency
- Factory option – cannot be retrofitted
- Requires differential lock for full effect
- Does not increase braking power
- Increased turning radius

Electronic Stability Program (ESP)

ESP

ESP is a computerized control system that prevents the wheels from spinning by applying brakes to individual wheels. It is a common belief that ESP increases traction, but actually it does not increase traction as such. Instead, ESP should be switched off when traction control systems like Onspot are engaged!