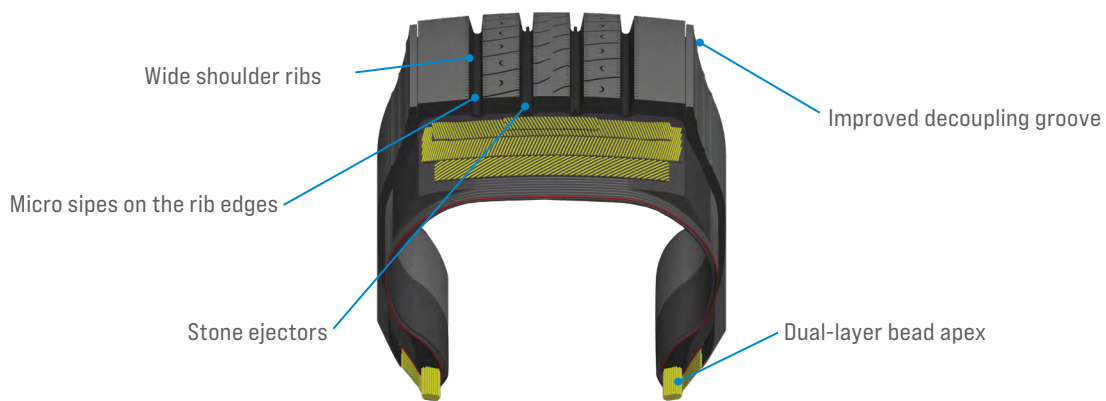


Engineering

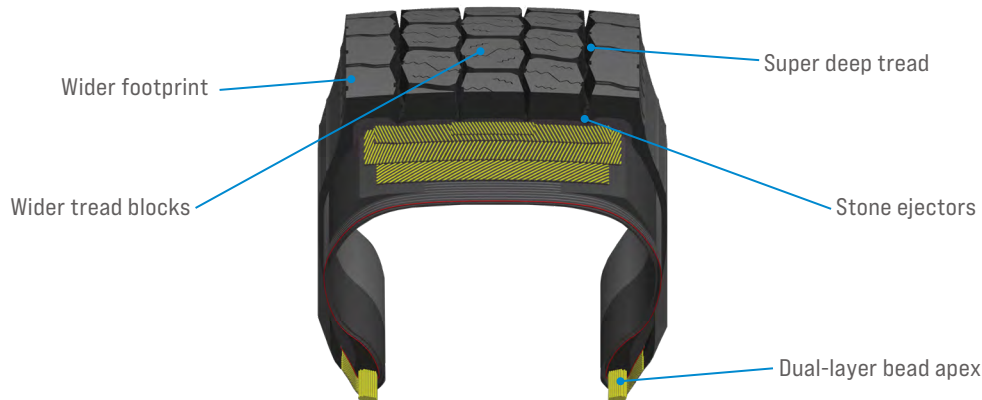
S-Tech Design is a collection of the most advanced features Sumitomo has to offer in the new medium truck lines. It is the optimal combination of specific features in each line working together for maximum performance and durability. All Sumitomo tires are designed with a four-belt package.



ST788SE



ST948SE



Flat Contact Technology

Sumitomo's sophisticated new technology minimizes irregular wear by controlling the contact pressure in the tire footprint. Flat Contact Technology delivers uniform contact pressure from shoulder to shoulder. The contact length of the shoulder rib in the tire footprint is almost equal to that of the center rib, so the contact patch is kept square while in contact with the ground. This leads to a uniform contact pressure distribution and significant resistance to irregular wear.

Technical Data

Tube-Type Mounting And Demounting

Any inflated tire mounted on a rim contains explosive energy. The use of damaged, mismatched or improperly assembled tire/rim parts can cause the assembly to burst apart with explosive force. If you are struck by an exploding tire, rim part or air blast, you can be seriously injured or killed.

Demounting Tube-Type Tires

1. If a tire has been running under-inflated or if any damage to the tire or wheel is suspected, the valve core should be removed prior to removing the tire/wheel assembly from the vehicle axle. This is to prevent a possible accident.
2. Before unlocking any side ring or lock ring, remove the valve core and allow the tire to deflate completely.
3. Remove all rim or wheel parts.
4. Inspect the tire for damages.

Mounting Tube-Type Tires

1. Insert the proper size tube into the tire and partially inflate (3 psi) to round out the tube (with larger sizes it may be necessary to use bead spreaders – see the next two sections for mounting instructions).
2. Insert the valve through the flap valve hole. (Make sure the reinforced patch which is directly over the flap valve hole is facing outwards.) Then insert the remainder of the flap into the tire.
3. Check the flap wings to insure against folding. This is easily accomplished by placing your hand into one tire side, then the other, then running your hand along the entire flap wing.
4. Inflate the tube until the flap is secure against the tire wall and the beads start to spread apart, making sure not to exceed 3 psi.
5. Apply a proper tire lubricant to both beads and the exposed flap. Make sure that excess lubricant does not run down into the tire.
6. Place tire, tube and flap on the wheel or rim, taking care to center the valve in the slot.
7. Fit side ring and lock ring, insuring that they are properly positioned, locked and are correct for the “fitment.”

Mounting Tube-Type Tires Using Manual Spreaders:

1. Follow steps 1 through 3 of the “mounting of Tube-Type Tires”. However, before inserting the flap into the tire, position two bead spreaders in the following manner:
 - a. Place the first at a 90° angle to the valve. (Flap is positioned between the spreader and the tube.)
 - b. Place the second directly opposite the first.
 - c. Spread the beads and insert the flap.
 - d. Close the beads, remove spreaders.
2. Follow steps 4 through 7 of the “Mounting of Tube-Type Tires”.

Mounting Tube-Type Tires Using Automatic Spreaders:

1. Spread the beads.
2. Inflate the tube to approximately 3 psi.
3. Insert the tube into the tire.
4. Insert the valve through the flap hole. (As mentioned, the flap reinforced valve area must face outwards.) Insert the remainder of the flap into the tire.
5. Close the beads.
6. Follow steps 4 through 7 of the “Mounting of Tube-Type Tires”.

Inflation of Tube-Type Tires

1. An air line with an extension (30” minimum), in-line gauge and clip-on valve chuck should be used for inflation. Remove valve core and lay the assembly flat on the ground. Using an OSHA-approved restraining device, inflate to 5 psi to seat beads. While the tire is still in the restraining device, make sure all rim components are centered and locked properly. If not, the tire must be deflated, broken down, relubricated and reinflated.

2. Deflate the tire by removing the air line. This allows the tube to relax, thus eliminating any wrinkles or uneven stretching that may have occurred during primary inflation.
3. Install the valve core and, using a safety cage or other OSHA-approved restraining device, reinflate the tire to the pressure shown on the sidewall in order to ensure proper bead seating, then adjust the tire to the proper operating pressure.
4. Reinspect the assembly for proper positioning of all components.
5. Check for leaks and install a metal or hard plastic valve cap.
6. Do not reinflate any tires that have been run under-inflated or flat without careful inspection for damage.

Tubeless Tire Mounting and Demounting

Reinflation of any type of tire/rim assembly that has been operated in a run-flat or under inflated condition (80% or less of recommended pressure) can result in serious injury or death. The tire may be damaged on the inside and can explode while you are adding air. The rim parts may be worn, damaged or dislodged and can explosively separate.

Demounting Tubeless Tires

1. Before loosening any nuts, deflate the tire by removing the valve core.
2. With the tire assembly lying flat, unseat the bead seat of both beads with a bead breaker tool. Do not use hammers of any type.
3. Apply a proper tire lubricant to the tire beads, rim ledges and flanges.
4. Beginning at the valve, remove the tire using tire irons designed for this purpose. Starting here will minimize chances of damaging the bead. Make certain that the flange with the tapered ledge that has the shortest span to the drop center is facing up. Always attempt to keep the bead not being worked by the irons in the full depth of the drop center cavity.

Mounting Tubeless Tires

1. Replace valve stem grommet and inspect valve stem for damage and wear. Replace valve stem if necessary.
2. Apply lubricant.
3. With the wheel/rim short ledge up, lay the tire over the rim at the valve side and work it on with proper tubeless tire tools, making full use of the drop center well.
4. Do not use any kind of hammer. Bead damage may occur leading to tire destruction and serious or fatal injury to you, or your customer.

Inflating Tubeless Tires

Reinflation of any type of tire/rim assembly that has been operated in a run-flat or under inflated condition (80% or less of recommended pressure) can result in serious injury or death. The tire may be damaged on the inside and can explode while you are adding air. The rim parts may be worn, damaged or dislodged and can explosively separate.

1. Lay tire/wheel assembly horizontally and inflate to no more than 5 psi to position the beads on the flanges.
2. To complete the seating of the beads, place the assembly in an OSHA-approved safety cage and inflate to 25 to 30 psi. Check the assembly carefully for proper bead seating and for any signs of distortion or irregularities from the run-flat.
3. If beads are properly seated, and if no damage is detected, continue to inflate to the maximum air pressure marked on the sidewall. If beads do not seat, deflate tire, relubricate the bead seats and reinflate.
4. After beads are properly seated, adjust tire pressure to recommended operating pressure. Check valve core for leakage, then install a metal or hard plastic valve cap.

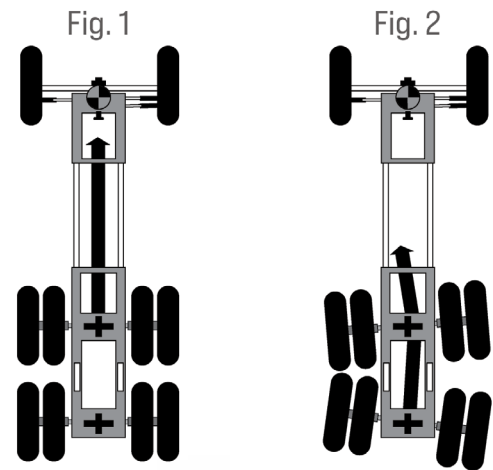
Technical Data

Drive Axle Alignment

Drive axle alignment is very important. Tandem drive axles that are not parallel to each other have a definite effect on steer-tire wear.

Fig. 1 shows a model of a tandem-drive axle tractor with both drive axles in proper alignment. In this case, the driver simply steers the truck straight ahead and neither fast wear nor irregular wear would be expected as a result of the driving axles.

A more severe case is shown in Fig. 2. Here, the drive axles are neither parallel to each other nor perpendicular to the chassis center line. The drive axle tires are trying to force the vehicle to turn left and the driver must compensate by turning to the right. This will result in fast and irregular wear and, as recent tests have shown, in a much more severe way than the previous case. Tests also indicate that the steer tire on the same side of the truck, on which the drive tires are closest together, will wear into an out-of-round condition.



Vehicle Alignment

For best vehicle handling and tire life, proper vehicle alignment is required. For best readings on alignment settings, vehicle should be loaded. However, many vehicle manufacturers also have tolerances for alignment settings when vehicle is unloaded. Before starting, correct any air pressure differences in tires and make sure vehicle is on a level surface, with brakes off.

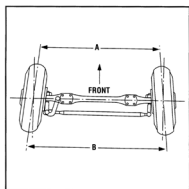
Drive Axle Recommendations

Irregular wear patterns on steer axle tires may come from misaligned drive axles and trailer axles, not to mention the obvious loss of tire mileage, vehicle handling and fuel economy. Drive and trailer axle alignment is normally set before steer-axle corrections are made.

Drive axles should be aligned in the following manner:

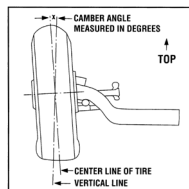
1. Position the drive axles perpendicular to the chassis center line.
2. For tandem drives, the drive axles should be positioned parallel to one another. Trailer axles should be aligned to the center line of the trailer pin at the start of settings.
3. Position axles to be perpendicular to the trailer center line and parallel to each other.

Front Axle Recommendations



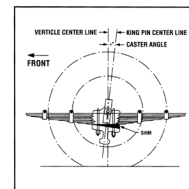
TOE-IN

Toe-in-set close to zero as vehicle manufacturer's recommendations allow in loaded condition. Do not set beyond zero as a toe-out condition will develop.



CAMBER

Camber-set as close to zero degrees as the vehicle manufacturer's recommendations allow in loaded condition.



CASTER

Caster-set to the maximum positive setting that vehicle manufacturer's recommendations allow.

WARNING: There is a danger in installing a tire of one rim diameter on a rim of a different diameter. Always replace a tire on a rim with another tire of exactly the same rim diameter designation and suffix letters. For example a 16" tire goes with a 16" rim. Never mount a 16" size diameter tire on a 16.5" rim. While it is possible to pass a 16" diameter tire over the lip or flange of a 16.5" size diameter rim, it cannot be inflated enough to position itself against the rim flange. If an attempt is made to seat the tire bead by inflating, the tire bead will break with explosive force and could cause serious injury or death. Rims of different diameters and tapers cannot be interchanged.

Tire Maintenance

Inspect tire conditions regularly. Look for signs of sidewall bulges, cracking, cuts and stone retention in grooves. If you have a question or concern, consult your Sumitomo Tire dealer.

Tire Replacement

By Department of Transportation regulations, any trailer or drive axle tire is to be removed from service when there are only 2/32" of tread left (or 4/32" on steer axle tires) in any tread groove. Sumitomo advises that, as a rule of thumb, tires should be removed at 4/32" remaining tread to allow better casing recovery for retreading.

Proper Tire Inflation

It is advisable to check all tire inflation pressures before each trip, or at least weekly. The best time to obtain accurate readings is when tires are cool to the touch, before any distance is traveled. Consult the air pressure guidelines in this book, or refer to the tire sidewall or pressure charts from The Tire and Rim Association. When speeds are constantly above 70 m.p.h., it is recommended to use maximum air pressure for good wear and performance. For safety and ease of checking air pressure, metal flow-through valve caps should be used.

Tire Rotation

Because of vehicle specifications (wheelbase, horsepower, gears, suspension) and terrain, most tires used on drive axles wear faster on the rear-drive axle than on the front-drive axle. By cross rotating rear-axle tires to front-axle position, and front-axle tires moved to rear axle position, wear can be equally controlled on all drive positions, resulting in longer miles in service.

Practice Good Driving Habits

- Avoid fast starts and sudden stops.
- Avoid using only trailer brakes to slow vehicle.
- Avoid potholes and debris (safely).
- Avoid hitting curbs.
- Do not exceed speed limit.

Determining Correct Tire Pressure

A tire requires proper air pressure to adequately carry the load placed on it. The tires also provide traction for braking and steering. Since the loaded vehicle weight determines tire inflation pressure, all tire manufacturers offer a load/inflation table to help determine the proper pressure.

These tables reflect values taken from the Tire and Rim Association. In general, use these steps to determine correct air pressure:

1. Always check air pressure when ambient temperature is cold.
2. Confirm if tire will be used in a single or dual wheel position.
3. In either case, determine the total weight that is allowed on the axle. In the case of a STEER axle (using two tires) divide the value by two.
4. Compare this value with the following load inflation table, and use the corresponding air pressure.

Also consider operating speeds. Many tire manufacturers recommend maximum speeds for various tire applications. Consult your Sumitomo representative if you have questions.

The SPEED SYMBOL indicates the speed at which the tire can carry a load corresponding to its load index under normal service conditions suggested by Sumitomo.

The LOAD INDEX is a code which reflects the maximum load a tire can carry at the speed indicated by its SPEED SYMBOL, based on the service application suggested by Sumitomo.

Technical Data

Load Inflation Table

"S = Single D = Dual "	PSI	65	70	75	80	85	90	95	100	105	110	115	120	125	127	130	135
8.25R15	S		2780	2930	3080	3200	3340	3470	3590	3750 (F)	3860	3970	4080 (G)				
	D		2700	2810	2930	3040	3150	3260	3360	3525 (F)	3635	3745	3860 (G)				
10.00R15	S		3780	3980	4170	4370	4540 (F)	4715	4890	5070 (G)	5270	5470	5675 (H)				
	D		3660	3830	3980	4130	4300 (F)	4470	4640	4805 (G)	4990	5175	5355 (H)				
9R17.5	S					3200	3340	3470	3590	3750 (F)	3860	3970	4080 (G)	4190		4300	4410 (H)
	D					3040	3150	3260	3360	3525 (F)	3635	3745	3860 (G)	3970		4080	4190 (H)
10R17.5	S					3860 (E)	4005	4150	4300 (F)	4235	4390	4540 (G)					
	D					3640 (E)	3785	3930	4080 (F)	4470	4640	4805 (G)					
11R17.5	S					4370	4540 (F)	4715	4890	5070 (G)	5270	5470	5675 (H)				
	D					4130	4300 (F)	4470	4640	4805 (G)	4990	5175	5355 (H)				
8R19.5	S		2540	2680	2835 (D)	2955	3075	3195 (E)	3305	3415	3525 (F)						
	D		2460	2570	2680 (D)	2785	2890	3000 (E)	3100	3200	3305 (F)						
8.25R20	S		3370	3560	3730	3890	4080 (E)	4235	4390	4540 (F)	4675	4810	4940 (G)				
	D		3270	3410	3550	3690	3860 (E)	4005	4150	4300 (F)	4425	4550	4675 (G)				
9.00R20	S		4080 (D)	4280	4480	4675 (E)	4850	5025	5205 (F)	5360	5515	5675 (G)					
	D		3860 (D)	4045	4230	4410 (E)	4585	4760	4940 (F)	5080	5220	5355 (G)					
10.00R20	S		4530	4770	4990	5220	5510 (F)	5730	5950	6175 (G)	6320	6465	6610 (H)				
	D		4380	4580	4760	4950	5205 (F)	5415	5625	5840 (G)	5895	5950	6005 (H)				
11.00R20	S		4940	5200	5450	5690	6005 (F)	6205	6405	6610 (G)	6870	7130	7390 (H)				
	D		4780	4990	5190	5390	5675 (F)	5785	5895	6005 (G)	6265	6525	6780 (H)				
12.00R20	S		5620	5920	6200	6480	6740	7160 (G)	7380	7600	7830 (H)	8050	8270 (J)				
	D		5440	5680	5910	6140	6360	6610 (G)	6790	6970	7160 (H)	7390	7610 (J)				
14/80R20	S						7595	7860	8110	8365	8610	8850	9095 (J)				
11.00R22	S		5240	5520	5790	6040	6395 (F)	6650	6910	7160 (G)	7380	7600	7830 (H)				
	D		5080	5300	5520	5730	5840 (F)	6095	6350	6610 (G)	6790	6970	7160 (H)				
11.00R24	S		5570	5860	6140	6420	6780 (F)	7060	7340	7610 (G)	7830	8050	8270 (H)				
	D		5390	5630	5860	6090	6175 (F)	6430	6690	6940 (G)	7160	7380	7610 (H)				
9R22.5	S		3370	3560	3730	3890	4080 (E)	4235	4390	4540 (F)	4675	4810	4940 (G)				
	D		3270	3410	3550	3690	3860 (E)	4005	4150	4300 (F)	4425	4550	4675 (G)				
10R22.5	S		4080	4280	4480	4675 (E)	4850	5025	5205 (F)	5360	5515	5675 (G)					
	D		3860	4045	4230	4410 (E)	4585	4760	4940 (F)	5075	5210	5355 (G)					
11R22.5	S		4530	4770	4990	5220	5510 (F)	5730	5950	6175 (G)	6320	6465	6610 (H)				
	D		4380	4580	4760	4950	5205 (F)	5415	5625	5840 (G)	5895	5950	6005 (H)				
12R22.5	S		4940	5200	5450	5690	6005 (F)	6205	6405	6610 (G)	6870	7130	7390 (H)				
	D		4780	4990	5190	5390	5675 (F)	5785	5895	6005 (G)	6265	6525	6780 (H)				
11R24.5	S		4820	5070	5310	5550	5840 (F)	6095	6350	6610 (G)	6790	6970	7160 (H)				
	D		4660	4870	5070	5260	5510 (F)	5675	5840	6005 (G)	6205	6405	6610 (H)				
215/75R17.5	S			3375	3540	3695	3860	4010	4065	4225	4385	4545	4705	4805 (H)			
	D			3200	3350	3500	3650	3800	3840	3995	4145	4295	4445	4540 (H)			
235/75R17.5	S				4200	4410	4615	4820	5025	5225	5420	5620	5810	6005 (J)			
	D				3970	4170	4365	4555	4745	4935	5125	5310	5495	5675 (J)			
245/70R17.5	S	3330	3505	3735	3915	4135	4310	4495	4685	4850	5070	5225	5410		5675		
	D	3570	3760	4000	5190	4430	4610	4815	5015	5190	5425	5600	5800		6005		
225/70R19.5	S		2895	3040	3195 (E)	3315	3450	3640 (F)	3715	3845	3970 (G)	4100	4190 (H)				
	D		2720	2860	3000 (E)	3115	3245	3415 (F)	3490	3615	3750 (G)	3855	3970 (H)				
245/70R19.5	S	3085	3265	3425	3640	3740	3890	4080 (F)	4190	4335	4540 (G)	4620	4805 (H)				
	D	2910	3070	3220	3415	3515	3655	3860 (F)	3940	4075	4300 (G)	4345	4540 (H)				
265/70R19.5	S	3415	3650	3830	3970	4180	4355	4540	4685	4850	5070 (G)						
	D	3195	3430	3600	3750	3930	4095	4300	4405	4415	4675 (G)						
245/75R22.5	S		3470	3645	3860	3975	4140	4300	4455	4610	4675 (G)						
	D		3160	3315	3525	3615	3765	3970	4055	4195	4300 (G)						
255/70R22.5	S				4190	4370	4550	4675	4895	5065	5205 (G)	5400	5510 (H)				
	D				3970	4110	4275	4410	4455	4610	4675 (G)	4915	5070 (H)				
275/70R22.5	S							5400	5630	5850	6070	6290	6510	6730		6940 (H)	
	D							4980	5180	5390	5590	5800	6000	6200		6395 (H)	
295/75R22.5	S		4500	4725	4940	5155	5370	5510 (F)	5780	5980	6175 (G)	6370	6610 (H)				
	D		4095	4300	4540	4690	4885	5070 (F)	5260	5440	5675 (G)	5795	6005 (H)				
315/80R22.5	S			5875	6175	6415	6670	6940 (G)	7190	7440	7610 (H)	7920	8270 (J)	8690		9090 (L)	
	D			5345	5675	5840	6070	6395 (G)	6545	6770	6940 (H)	7210	7610 (J)	7910		8270 (L)	
385/65R22.5	S		6380	6720	6940	7350	7650	8050	8230	8510	8820	9050	9370 (J)				
425/65R22.5	S		7590	7990	8270	8740	9100	9370	9790	10100	10500 (J)	10700	11400 (L)				
445/65R22.5	S		8230	8660	9090	9480	9870	10200 (H)	10600	11000	11400	11700	12300 (L)				
285/75R24.5	S			4770	4940	5210	5450	5675 (F)	5835	6040	6175 (G)	6440	6780 (H)				
	D			4340	4540	4740	4930	5205 (F)	5310	5495	5675 (G)	5860	6175 (H)				

Technical Data

Medium Truck Range of Sizes & Load Range

SIZE	ST788SE ST778+ SE	ST948SE ST938	ST710SE	ST719SE ST709SE	ST909	ST908	ST718	ST918	ST719	ST727 ST717	ST528	ST518	ST508	ST520	ST720	ST770	ST900	ST901
8.25R15										G								
10.00R15										G								
9R17.5										G								
10R17.5										H								
11R17.5										G								
215/75R17.5									H									
235/75R17.5									J									
245/70R17.5									J									
8R19.5							F											
225/70R19.5					G			F/G	F/G									
245/70R19.5					H			G	G/H									
265/70R19.5									H									
8.25R20										G								
9.00R20										F								
10.00R20						H				H		H					H*	
11.00R20										H		H						
12.00R20										J			J					
14/80R20										J								
11.00R22													H					
9R22.5										G								
10R22.5					G					G								
11R22.5	H/H	H/H	G	H/H	H	H				H	H							H*
12R22.5					H					H		H						H*
315/80R22.5						J			L		L							
295/75R22.5	H/G	G/G	G	H/G	H	G												
245/75R22.5									G									
255/70R22.5					H	H			H									
275/70R22.5									J									
385/65R22.5														J	J	J		
425/65R22.5														L	L			
445/65R22.5														L	L			
11.00R24													H					
11R24.5	H/H	H/H	G	H/H	H					H	H						H*	H
285/75R24.5	H/G	G/G	G	H/G	G													

*Speed Restricted to 55 mph.