

GROW FOR GENERATIONS



SPECIALITY TIRES TECHNICAL BOOK

GRI
WE'LL GET YOU THERE

Business today is complex, ambiguous and uncertain – a little like life itself. To help you advance and attain your objectives, you need something that is completely the opposite. GRI tires are robustly engineered and relentlessly tested to give you assured performance, so that you can get a grip on the things that really matter.

Whatever your goal, **GRI will get you there.**

SPECIALITY TIRES

PRODUCT RANGE BOOK

INDEX

GRADER	GRIP EX GT222 (G-2 / L2)	1
	GRIP EX GT333 (G3)	2
INDUSTRIAL TRACTOR	GRIP EX R400 (R-4)	3
LOADER	GRIP EX LT100 (R-4)	4
	GRIP EX LT122 (L2)	5
	GRIP EX LT300	6
EXCAVATOR	GRIP EX EX222 (E-2)	7
TELEHANDLER	GRIP EX TL200 (R1-IND)	8
MULTIPURPOSE	GRIP EX MP500 (MPT R4)	9
SKIDSTEER	XPT SS (R4)	10
	XPT (R4)	11
	XPT ND (R4)	12
TIRE CARE & SAFETY	TIRE CONSTRUCTION AND COMPONENTS	14
	TIRE DEFINITIONS	15
	UNITS & CONVERSIONS	16
	SPEED SYMBOL	17
	LOAD INDEX	18
	CONVERSION TABLE	19
	TIRE MOUNTING & REMOVAL	20
	TIRE TRANSPORTATION	23
	TIRE STORAGE	24
	TIRE LIFE & FAILURE	24
ABOUT GRI	ABOUT GRI	25

GT222 (G-2/L2)

BIAS TIRES BUILT FOR
GRADERS



- Specially designed for grader machines
- Special tread design enhances traction and self-cleaning properties
- Special rubber compound offers better tire life



TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC	At Speed 40 kmph (25 mph)			Pressure		
					SW	OD			Speed Index	Load Index	MAX. LOAD			
			Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm	kgs	PSI	Bar			
24														
13.00-24	12	TL	8.00 TG SDC	9.00/1.5(DC)	333	1278	582	3785	A 8	143	2725	43.5	3	
13.00-24	16	TL	8.00 TG SDC	9.00/1.5(DC)	333	1278	582	3785	A 8	148	3150	58	4	
14.00-24	16	TL	8.00 TG SDC	9.00/1.5(DC)	362	1348	598	3962	A 8	153	3650	54	3.5	
16.00-24	16	TL	10.00 VA SDC		429.3	1450.3	635	4318	A8	160	4500	47	3.2	

GT333 (G3)

BIAS TIRES BUILT FOR
GRADERS



- Bias tire for graders offering excellent cut and puncture resistance
- Strong casing absorbs shocks and impacts in all heavy-duty operations
- Wide tread width for excellent traction in grading environments



TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC	At Speed 40 kmph (25 mph)			Pressure	
					SW	OD			Speed Index	Load Index	MAX. LOAD		
			Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm			Kgs	PSI	Bar
24													
14.00-24	16	TL	8.00 TG SDC	9.00/1.5(DC)	365	1345	617	4002	A 8	153	3650	51	3.5

R400 [R4]

BIAS TIRES BUILT FOR
INDUSTRIAL TRACTORS



- Robust tread design offers excellent traction on hard surfaces
- Innovative three step lug design prevents side slip
- Tough Nylon-cord body for superior impact resistance and high puncture resistance

	TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension ± 2%		SLR	RC	At Speed 40 kmph (25 mph)			Inflation Pressure	
						SW	OD			Speed Index	Load Index	MAX. LOAD		
				Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm			kgs	PSI	Bar
24														
	14.9-24	12	TL	DW13	DW12	378	1240	559	3706	A8	145	2900	43	3
	16.9-24	12	TL	DW15L	DW14L	429	1310	584	3838	A8	149	3250	38	3
	17.5L-24	12	TL	DW15L	DW14L	445	1270	570	3683	A8	148	3150	39	3
	19.5L-24	12	TL	DW16L		490	1325	584	3835	A8	151	3450	33	2
	21L-24	12	TL	DW18L		533	1377	610	3988	A8	155	3875	32	2
26														
	18.4-26	12	TL	DW16L	DW15L	467	1425	635	4191	A8	156	4000	37	3
28														
	16.9-28	12	TL	DW15L	DW14L	439	1410	635	4140	A8	152	3550	38	3

LT100 (R-4)

BIAS TIRES BUILT FOR
LOADERS



- Suitable for backhoe loaders and compact loaders
- Herringbone tread pattern offers high traction in toughest terrains
- Center Crown Block provides better traction and accelerative movement for higher productivity



TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC	At Speed 40 kmph (25 mph)			Inflation Pressure	
					SW	OD			Speed Index	Load Index	MAX. LOAD		
			Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm			kgs	PSI	Bar
18													
12.5/80-18	12	TL	W9x18	11x18	300	958	431	2813	A6	129/142	2700	54	3.7

LT122 (L2)

BIAS TIRES BUILT FOR
BACKHOE AND COMPACT LOADERS



- Suitable for backhoe loaders and compact loaders in all farming, digging and loading operations
- Extra deep tread ensures increased puncture resistance and durability
- Features excellent traction and stability as well as improved cut and chip resistance



TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC	At Speed 40 kmph			Inflation Pressure		
					SW	OD			Speed Index	Load Index	MAX. LOAD			
			Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm			Kgs	PSI	BAR	
24.0														
	14.9-24	12	TL	DW13	W12	378	1265	570	3800	A8	145.0	2900	42	2.9

LT300

BIAS TIRES BUILT FOR LOADERS



- Offers superior traction on and off the road
- Cut and chip resistance compound for extended tire life
- Deep tread delivers extended wear life



	TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC	At Speed 40 kmph			Inflation Pressure		At Speed 30 kmph			Inflation Pressure	
						SW	OD			Speed Index	Load Index	MAX. LOAD			Speed Index	Load Index	MAX. LOAD		
				Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm	Kgs	PSI	Bar	Kgs	PSI	Bar				
16																			
	9.00-16	16	TT	6.50H	-	255	925	427	2740	A8	129	1850	105	7.25	A6	133	2300	105	7.25

EX222 (E-2)

BIAS TIRES BUILT FOR EXCAVATORS



- Suitable for excavators and compact loaders
- Wide diagonal lugs and mud breakers offer excellent traction and outstanding self-cleaning



	TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC	At Speed 50 kmph			Inflation Pressure		At Speed 10 kmph			Inflation Pressure	
						SW	OD			Speed Index	Load Index	MAX. LOAD			Speed Index	Load Index	MAX. LOAD		
													Rec. inch	Alt. inch				± 2 % mm	± 2 % mm
				20															
	10.00-20	16	TT	7.5	7.0,8.0	274.3	1049	508	3175	B	146	3000	109	7.5					
	16.0/70-20	14	TL	13SDC	13	403.9	1090	483	3302	B	149	3250	51	3.5	A2	166	5300	65	4.5
24																			
	16.0/70-24	14	TL	13SDC	13 (DC)	410	1190	575	3600	B	152	3550	51	3.5	A2	169	5800	65	4.5

TL200 (R1-IND)

BIAS TIRES BUILT FOR TELEHANDLERS



- Designed for telehandler machines
- Wide Lugs and Tread width provides excellent stability and smooth ride on hard surfaces for higher productivity
- Strong Casing provides resistance to impacts and shocks in heavy-duty operations and ensures extensive tire life

TYRE SIZE	PR	TT/ TL	RIM		Unloaded Inflated Dimension		SLR	RC	Load capacity Drive Wheel				Load capacity Drive Rolling Wheel				Inflation Pressure	
					SW	OD			30km/h (18 mph)		40km/h (25 mph)		30km/h (18 mph)		40km/h (25 mph)			
			Rec. inch	Alt. inch			± 2 % mm	± 2 % mm	mm	± 2.5 % mm	A6 Load Index	MAX. LOAD	A8 Load Index	MAX. LOAD	A6 Load Index	MAX. LOAD		
					Kgs	Kgs					Kgs	Kgs	Kgs	Kgs	Kgs	Kgs	PSI	Bar
24																		
15.5/80-24	16.0	TL	W12	W13,W14L	392	1270	569	3683	151	3450	147	3075	163	4875	159	4375	58	4

MP500 (MPT R4)

BIAS TIRES BUILT FOR
MULTIPURPOSE



- An agro-industrial tire suitable for on and off road application
- Strong casing provides resistance to impacts and shocks in heavy-duty operations, delivering extensive tire life
- Grooves between center blocks and lugs gives better stability, strength and shear movement for higher productivity



TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC	At Speed 90 Kmph	At Speed 40 Kmph	Inflation Pressure	
					SW	OD			MAX. LOAD	MAX. LOAD		
			Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm	Kgs	Kgs	PSI	Bar
18												
12.5-18	10	TL	11	12 SDC	325	990	450	2940	1800	2070	43.5	3
20												
16.0/70-20	14	TL	13SDC	13	405	1128	490	3350	2900	3340	51	3.5

XPT SS (R4)

BIAS TIRES BUILT FOR
SKID STEERS



- Deep directional tread and curved lugs provide excellent traction in rough surfaces
- Self-cleaning terrace keeps the tire clean and the machine energy efficient with better fuel efficiency
- Extra thick sidewall reduces stress cracking

	TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC
						OD	SW		
				Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm
15.0									
	31X15.5-15	10.0	TL	13		399	790	355	2336
16.5									
	10-16.5	8.0	TL	8.25		860	278	356	2286
	10-16.5	10.0	TL	8.25		860	278	356	2286
	12-16.5	12.0	TL	9.75		860	314	381	2434
	14-17.5	14.0	TL	10.5		930	370	420	2743

At Speed 8 kmph			At Speed 16 kmph			Inflation Pressure	
Speed Index	Load Index	MAX. LOAD kgs	Speed Index	Load Index	MAX. LOAD kgs		
A2	130	1900	A3	122	1485	61	4.2
A 2	129	1850	A3	121	1450	60	4.2
A 2	134	2120	A3	126	1700	75	5.25
A 2	145	2900	A3	137	2300	80	5.6
A2	155	3875	A3	147	3075	80	5.6

XPT (R4)

BIAS TIRES BUILT FOR SKID STEERS



- Budget tire for skid steer application
- Featuring extra deep tread and sidewall protection
- Thick sidewall reduces stress cracking



TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC
					OD	SW		
			Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm
16.5								
10-16.5	10.0	TL	8.25		780	278	356	2286
12-16.5	12.0	TL	9.75		825	314	381	2434

At Speed 8 kmph			At Speed 16 kmph			Inflation Pressure	
Speed Index	Load Index	MAX. LOAD	Speed Index	Load Index	MAX. LOAD		
		kgs			kgs	PSI	Bar
A2	134	2120	A3	126	1700	75	5.25
A 2	145	2900	A3	137	2300	80	5.6

XPT ND (R4)

BIAS TIRES BUILT FOR
SKID STEERS



- Horizontal tread block tire designed for Skid Steers
- Deep multi directional tread and curved lugs provide excellent traction in rough surfaces
- Very thick sidewall reduces stress cracking



	TYRE SIZE	PR	TT / TL	RIM		Unloaded Inflated Dimension		SLR	RC
						OD	SW		
				Rec. inch	Alt. inch	± 2 % mm	± 2 % mm	mm	± 2.5 % mm
16.5									
	10-16.5	10.0	TL	8.25		780	278	356	2286
	12-16.5	10.0	TL	9.75		825	314	381	2434

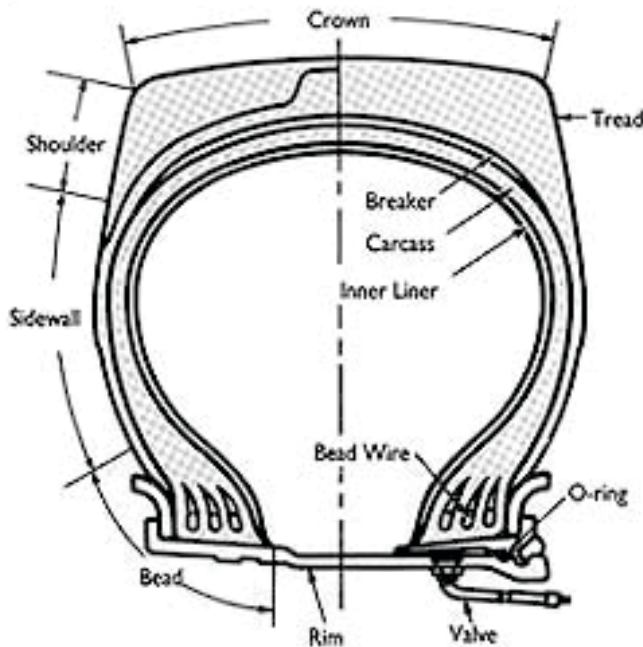
At Speed 8 kmph			At Speed 16 kmph			Inflation Pressure	
Speed Index	Load Index	MAX. LOAD	Speed Index	Load Index	MAX. LOAD		
		kgs			kgs	PSI	Bar
A 2	134	2120	A3	126	1700	75	5.25
A 2	140	2500	A3	132	2000	65	4.5



TECHNICAL INFORMATION

BASIC TIRE AND RIM SPECIFICATIONS

TIRE CONSTRUCTION AND COMPONENTS



Tread:

Tread is the outermost covering of the tire, and is the only part that normally comes in contact with the road surface.

Carcass:

The carcass of tires consists of a number of rubber-coated layers of fabric/steel called "plies". The carcass forms a semi rigid frame for the compressed air in a tire, but is flexible enough to absorb some shocks and jolts from the road surface.

Bead:

Bead fixes the tire to the rim to support the load.

Breaker/ Belts:

It is the rubber coated layers of fabric/steel cord between the tread and the carcass, binding the two together. The breaker prevents cuts in the tread from reaching the carcass and helps absorb shocks.

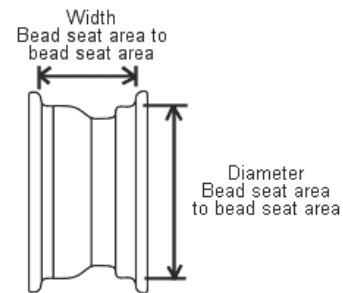
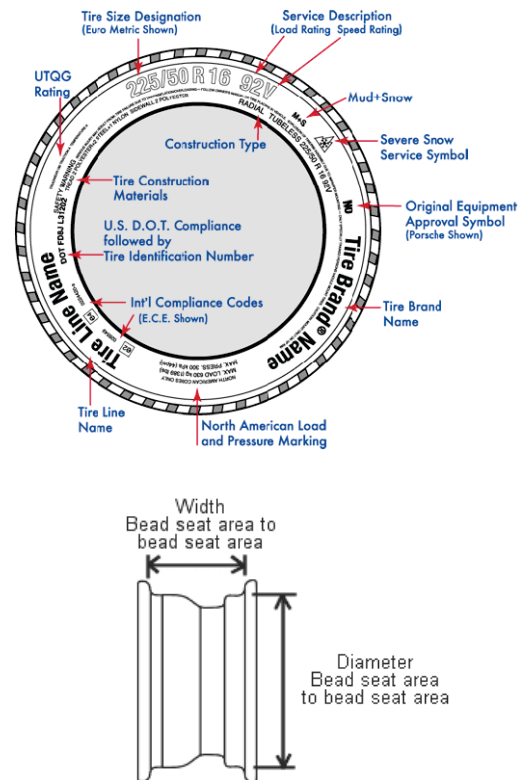
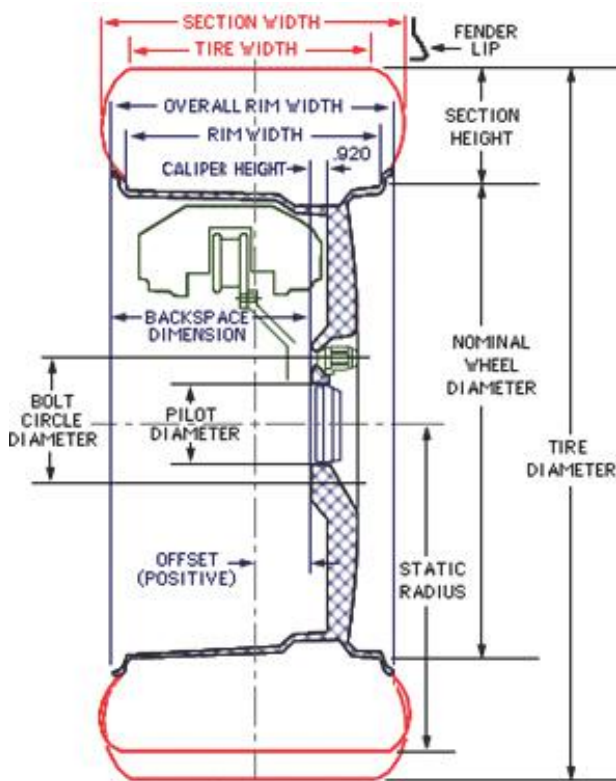
Sidewall:

The sidewall is composed of a flexible, crack-resistant rubber, and protects the carcass from damage.

Inner Liner:

The inner liner is made of an air-impermeable rubber compound and is comparable to tubes in tube type tires.

TIRE DEFINITIONS



Overall Diameter (OD)

Inflated diameter of the tire under reference tire pressure, but with no vehicle load.

Overall Width (OW)

Inflated width of the tire under reference tire pressure on the sidewalls.

Section Width (SW)

Inflated width of the tire under reference tire pressure excluding any bars, letters or design embossed on the sidewalls.

Section Height (SH)

The distance from the bead to the tread face.

Section Height = $\frac{\text{Overall Tire Diameter} - \text{Nominal Rim Diameter}}{2}$

Static Loaded Radius (SLR)

It is the minimum radius acquired by the tire under reference load and pressure at static condition. This is the distance from the vehicle hub centerline to the ground when the tire is inflated and when the tire supports the vehicle load.

Tread Width

This is the distance measured from the inner tread shoulder to the outer tread shoulder.

Aspect Ratio (AR)

This refers to the tire's section height in relation to its section width, as a percentage. For example, a 60 series tire features a sidewall that's 60 percent as tall as the tire's section width. Aspect Ratio = $(\text{Nominal section height} / \text{Section width}) \times 100$

Nominal Rim Diameter

Outer diameter of bead seat area of rim flange.

Tire Size

The size of each tire is indicated by nominal section width and bead diameter in inches. Bias or cross ply construction is indicated by " - " and Radial construction is indicated by the letter "R".

Example:

Bias construction: 12.4-24; 24.00-35; 10.00-20 etc.

Radial construction: 360/70R24; 10.00R20; 26.5R25 etc.

UNITS & CONVERSIONS

PRESSURE UNITS CONVERSION TABLE

bar	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
kPa	100	150	200	250	300	350	400	450	500	550
p.s.i.	15	22	29	36	44	51	58	65	73	80

bar	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5
kPa	600	650	700	750	800	850	900	950	1 000	1 050
p.s.i.	87	94	102	109	116	123	131	138	145	152

UNITS CONVERSION TABLE

Length
1 millimeter (mm) = 0.03937"
1 inch (") = 25.4 mm = 0.0254 m
1 meter (m) = 3.281 ft
1 foot (ft) = 0.3048 m
1 kilometer (km) = 0.6214 mile
1 mile = 1609 m = 1.609 km

Mass
1 pound (lb) = 0.4536 kg
1 kilogram (kg) = 2.205 lb
Volume
1 litre (l) = 0.21 gall
1 imperial gallon (imp.gal) = 4.55 l

Pressure
1 p.s.i. (lb/in ²) = 6.895 kPa
1 kg/cm ² = 98.066 kPa
1 bar = 100 kPa

SPEED SYMBOL

The Speed Symbol indicates the maximum speed at which the tire can carry a load corresponding to its load index, under specified conditions.

SPEED RATING	(KM/H)	(MPH)	SPEED RATING	(KM/H)	(MPH)	SPEED RATING	(KM/H)	(MPH)
A1	5	3	D	65	40	Q	160	100
A2	10	6	E	70	43	R	170	106
A3	15	9	F	80	50	S	180	112
A4	20	12	G	90	56	T	190	118
A5	25	16	J	100	62	U	200	124
A6	30	19	K	110	68	H	210	130
A7	35	22	L	120	75	V	240	149
A8	40	25	M	130	81	W	270	168
B	50	31	N	140	87	Y	300	186
C	60	37	P	150	94	(Y)	300+	186+

LOAD INDEX

Index	Kg	Index	Kg	Index	Kg	Index	Kg	Index	Kg	Index	Kg	Index	Kg
0	45	40	140	80	450	120	1,400	160	4,500	200	14,000	240	45,000
1	46.2	41	145	81	462	121	1,450	161	5,625	201	14,500	241	46,250
2	47.5	42	150	82	475	122	1,500	162	4,750	202	15,000	242	47,500
3	48.7	43	155	83	487	123	1,550	163	5,875	203	16,000	243	48,750
4	50	44	160	84	500	124	1,600	164	5,000	204	16,000	244	50,000
5	51.5	45	165	85	515	125	1,650	165	5,150	205	16,500	245	51,500
6	53	46	170	86	530	126	1,700	166	5,300	206	17,000	246	53,000
7	54.5	47	175	87	545	127	1,750	167	5,450	207	17,500	247	54,500
8	56	48	180	88	560	128	1,800	168	5,600	208	18,000	248	56,000
9	58	49	185	89	580	129	1,850	169	5,800	209	18,500	249	58,000
10	60	50	190	90	600	130	1,900	170	6,000	210	19,000	250	60,000
11	61.5	51	195	91	615	131	1,950	171	6,150	211	19,500	251	61,500
12	63	52	200	92	630	132	2,000	172	6,300	212	20,000	252	63,000
13	65	53	206	93	650	133	2,060	173	6,500	213	20,600	253	65,000
14	67	54	212	94	670	134	2,120	174	6,700	214	21,200	254	67,000
15	69	55	218	95	690	135	2,180	175	6,900	215	21,800	255	69,000
16	71	56	224	96	710	136	2,240	176	7,100	216	22,400	256	71,000
17	73	57	230	97	730	137	2,300	177	7,300	217	23,000	257	73,000
18	75	58	236	98	750	138	2,360	178	7,500	218	23,600	258	75,000
19	77.5	59	243	99	775	139	2,430	179	7,750	219	24,300	259	77,500
20	80	60	250	100	800	140	2,500	180	8,000	220	25,000	260	80,000
21	82.5	61	257	101	825	141	2,575	181	8,250	221	25,750	261	82,500
22	85	62	265	102	850	142	2,650	182	8,500	222	26,500	262	85,000
23	87.5	63	272	103	878	143	2,725	183	8,750	223	27,250	263	87,500
24	90	64	280	104	900	144	2,800	184	9,000	224	28,000	264	90,000
25	92.5	65	290	105	925	145	2,900	185	9,250	225	29,000	265	92,500
26	95	66	300	106	950	146	3,000	186	9,500	226	30,000	266	95,000
27	97.5	67	307	107	975	147	3,075	187	9,750	227	30,750	267	97,500
28	100	68	315	108	1,000	148	3,150	188	10,000	228	31,500	268	100,000
29	103	69	325	109	1,030	149	3,250	189	10,300	229	32,500	269	103,000
30	106	70	335	110	1,060	150	3,350	190	10,600	230	33,500	270	106,000
31	109	71	345	111	1,090	151	3,450	191	10,900	231	34,500	271	109,000
32	112	72	355	112	1,120	152	3,550	192	11,200	232	35,500	272	112,000
33	115	73	365	113	1,150	153	3,650	193	11,500	233	36,500	273	115,000
34	118	74	375	114	1,180	154	3,750	194	11,800	234	37,500	274	118,000
35	121	75	387	115	1,215	155	3,875	195	12,150	235	38,750	275	121,500
36	125	76	400	116	1,250	156	4,000	196	12,500	236	40,000	276	125,000
37	128	77	412	117	1,285	157	4,125	197	12,850	237	41,250	277	128,500
38	132	78	425	118	1,320	158	4,250	198	13,200	238	42,500	278	132,000
39	136	79	437	119	1,360	159	4,375	199	13,600	239	43,750	279	136,000

CONVERSION TABLE

Tire Size Correspondences GRI						
Rim	SRI	Standard Bias	Standard Radial 80/95	L Radial	L Radial	Row Crop
				70/75	65/60	90/95
24	525	11.2-24	280/85R24	320/70R24		300/80R24
	550	12.4-24	320/85R24	360/70R24		340/80R24
	575	13.6-24	340/85R24	380/70R24	440/65R24*	
	600	14.9-24	380/85R24	420/70R24	480/65R24*	230/95R32*
	625	16.9-24	420/85R24	480/70R24	540/65R24*	270/95R32
28	600	12.4-28	320/85R28	360/70R28		230/95R32*
	625	13.6-28	340/85R28	380/70R28	440/65R28*	270/95R32*
	650	14.9-28	380/85R28	420/70R28	480/65R28*	
	675	16.9-28	420/85R28	480/70R28	540/65R28*	270/95R36*
30	675	14.9-30	380/85R30	420/70R30	540/65R28*	440/80R28
	700	16.9-30	420/85R30	480/70R30	540/65R30*	270/95R38*
	700				600/65R28*	
	725	18.4-30	460/85R30		600/65R30*	230/95R42*
	725		480/80R30			
34	725	14.9-34	380/85R34			480/80R34
	750	16.9-34	420/85R34	480/70R34	540/65R34*	230/95R44*
	775	18.4-34	460/85R34	520/70R34	600/65R34*	270/95R44*
36	700	12.4-36	320/85R36	480/70R30*	540/65R30*	
38	750	13.6-38	340/85R38	600/70R30*	540/65R34*	
	800	16.9-38	420/85R38	480/70R38	540/65R38*	230/95R48*
	800			600/70/R34*		
	825	18.4-38	460/85R38	520/70R38	600/65R38*	270/95R48*
	825			650/75R32*		300/95R46*
	875	20.8-38	520/85R38	580/70R38	650/65R38*	380/90R46*
42	875		480/80R42		800/65R32*	340/85R48*
	925	20.8-42	520/85R42	620/70R42	900/60R32*	300/95R52*
	925			710/70R38	650/65R42*	270/95R54
46	925	18.4-46	480/80R46			
	975	20.8-46	520/85R46	710/70R42*		
	975		650/85R38*	800/70R38*		
50	975	18.4-50	480/80R50			

Sizes in the grey shaded boxes are not available at present in GRI product range
 Sizes with asterisks (*) calls for rim change

TIRE MOUNTING & REMOVAL

General instructions

Tire fitting and removal can be dangerous. Only specially trained operators using proper tools and procedures are requested to perform mounting & dismounting activity. If not done by a qualified personnel or correct procedures, these operations may cause visible or invisible damage to the tire and rim, which may result in breakdown during subsequent use and also create a serious risk for operator's safety.

In exceptional cases where these operations cannot be carried out by an expert, tire mounting and removal must be performed by carefully following the instructions specially provided.

- The tire to be fitted must be the correct type and size for the vehicle concerned and the intended use should be ensured.
- Particular attention must be paid to the compatibility of the rim and tire centering.
- For high powered tractors, check that the rims for the drive wheels feature a knurling in the bead seat, which can avoid the tires slippage on the rim during moments of high traction, thus eliminating the risk of shearing of the valve.
- Painting on the bead seats of rims for drive wheels with epoxy resin paints should be avoided. In the case of rims with a special finish, carefully rasp and renew the protection with a normal anti-rust treatment.
- New tires should also have all other parts (inner tube, flap, valve sealing ring) new.
- For dual fitting, use only tires of the same size & dimensions, structure and groove depth and comply with the dual spacing specified for the size used.
- Used tires should be checked from both external and internal side for water, moisture, foreign bodies or any sign of rust. If damage is found and assessed to be irreparable, the tire should be scrapped.
- The rim must be clean and in good condition, especially if it has already been used.

Tire cleaning & maintenance

- Rims and rim components with rust, deformed, damaged or re-welded should be discarded.
- Special care to be taken for not damaging any parts of the tire or tube during fitting and removal.
- Always use the proper specialized equipment and tools and the approved type of lubricant (never use silicone or petroleum-base lubricants).
- Tire bead area and the contact area between the rim and the tire should be cleaned.
- Tire, tube and the flap compatibility should be as per standards.
- For TUBE TYPE tires, there should not be any air between the tire and inner tube.
- For correct fitting of tube type tires, it is advisable to lightly powder and partially inflate the tube before placing it inside the tires in order to avoid creasing.
- It should be ensure that the tire is centred on the rim.

Lubrication procedure

- The rim bead seat, rim flange and tire bead should be lubricated with an high quality, quick drying, fitting lubricant made for agricultural tires or in case of emergency, soap and water.
- The fitting lubricant with these characteristics reduces also the risk of the tire slipping on the rim. If this advice is not followed, bead damage or fracture could occur during fitting and/or rim slippage during normal operation, which may cause premature tire failure.
- For application of lubricants a soft-bristled brush to be used.
- Silicone & other solvent-based substances should be avoided.

Tire mounting procedure

Note: Mount and remove tires on DW type rims on the flange nearer the lower well (irrespective of valve position).

For Tubeless

- Fasten the valve core housing in the valve hole.
- Fit the tire on the rim, placing the inner bead over the flange at the top. Be sure the bead is not "hung up" on the bead seat flange. It should move into the rim well.

For Tube type

- Pull the tire towards the outside of the rim as far as possible in order to make room for the tube.
- Before inserting the tube in the tire, ensure that the valve is positioned at the bottom of the wheel. Align the stem with the valve hole and place the tube in the tire, starting at the bottom. Place the valve in the valve hole and screw the rim nut in place. Be sure that the tube is well inside the rim.

For Both Tube type & Tubeless

- Starting at the top, use the fitting tools to lift the outer bead up and over the rim flange, then down into the rim well. After positioning the first section of the outer bead in the rim well, place one hand against the section to hold it in place and then use the other hand to pry the remainder of the bead over the flange with the fitting tools.
- Centre the tire on the rim. This is extremely important in order to prevent broken beads and assist the correct positioning the bead on the rim bead seat during inflation.

Procedure During tire inflation

- Keep a safe distance, always use a safety cage, if possible anchored to the wall and/or the floor, or with retaining chains if no cage is available, the fitter must ensure that no part of his body is in the possible trajectory of the valve mechanism or the caps during inflation. (See the red dotted area shown in figures 1, 2, 3 which shows the risk region for personnel during these operations).



Figure 01



Figure 02



Figure 03

- Do not leave equipment on the sidewall of the tire laid flat
- Correct & tested pressure limitation gauges is to be used only.
- Use a filter and dehumidifier (or drier) on the compressed air line in order to avoid the entry of humidity/dirt

Steps for tire inflation

Step 1

Max inflation pressure

- 1,5 bar for tires with tire diameter 15" or less
- 1,0 bar for all other tires
- For wheels with BLS (tire lock) separate instructions must be followed. Ensure that the beads are correctly positioned on the bead seat. If not, deflate the tire and centre it on the rim.

Step 2

- Do not exceed the recommended maximum fitting pressure during inflation. In case of doubt or any difficulty, contact a specialist.
- Inflation up to max bead seating pressure with a safety device (blast cage or distance filling) to be done.

- Step 3

After inflating up to max. bead seating pressure, the pressure must be adjusted to appropriate shipment or service pressure before removal from the safety device. Adjustment to service pressure with a safety device (safety cage or distance filling).

In cases in which service pressure is higher than:

- 4 bar for a tire with 5 bar - bead seating pressure
- 3 bar for a tire with 3,5 bar - bead seating pressure
- 2 bar for tire with 2,5 bar - bead seating pressure

The tire must firstly be inflated to a pressure 20% higher than the service air pressure and then adjusted to service pressure.

- 5 bar for tires mounted on 15-degree rims
- 3,5 bar for Radial tractor tires
- 2,5 bar for All other Agricultural tires fitted on 5-degree rims

Final Checking after mounting

- Tire beads to be checked whether properly positioned on the rim seats or not.
- It is important to inflate the tire to the max. Bead seating pressure. This is to ensure the proper fit of the tire against the rim.
- If the beads are not correctly seated it is necessary to deflate, lubricate and inflate again. Repeat these operations until the beads are correctly seated.

Removal procedure

- Tires should never be tried to remove in inflated conditions.
- Tire should be Deflate by removing the valve core. After deflating, remove the rim nut and push the valve through the valve hole (for tube type tires).
- After the complete deflation of tire, hydraulic "bead unseating" tool to be placed between the tire bead and rim flange and bead to be removed off from the bead seat.
- Lubricate the tire bead and the rim flange area with specific lubricants.
- Bead to be pushed off at the bottom of the wheel into the well with sufficient force. Insert tire lever under the bead at the top of the wheel and carefully slide the bead over the rim flange.
- Bead section to be hold now over the flange with a tire lever and use another to slide the next section over the flange.
- Carefully pry the rest of the inside bead over the rim flange, ensuring that the bead area at the top of the tire is down in the well of the rim & remove the tire completely from the rim.
- Use & selection of the tools to be done carefully to avoid damage to the sidewall & bead areas.

TIRE TRANSPORTATION

Wrong method of transporting a tire can cause serious damage. A proper care to be taken to insure that the bead & inner part of the tire in not getting damaged. Small bead damages can cause a serious issue of air leakage resulting under inflation and possible separation of the tire components.

It is highly advised to observe the below recommendations during tire transportation or handling, in order to reduce the risk of damages or problems:

- Tire should not be lifted with a crane hook by leverage on the bead.
- Steel slings, chains or ropes should not be used for lifting & carrying the tires.
- Large fibered straps, rubber slings or specific belts can be used.
- Forklift is recommended for transport of tires, where tire is to be lifted under tread and not on the bead.
- Complete wheels shipped from the warehouse are usually inflated to the following shipment pressures:
- 1.0 bar for tractor and garden tractor wheels
- 1.5 bar for implement wheels
- 2.0 bar for other wheels
- Above shipment pressures to be adjusted to the correct level according to the Technical Data tables, before use.

TIRE STORAGE

A special care should be taken during the storage of tires in order to prevent the tires from possible damages by deformation, abrasion & chemical reactions.

- Storage placed should be dry & cool.
- Tires should not be exposed for prolong duration to direct sunlight.
- Tires should be kept away from heat and ozone sources (electric motors, transformers, arc welding stations etc.), grease, petrol, volatile solvents or other substances that may deteriorate the rubber & caused changes in chemical properties.
- Avoid horizontal storage for tires (whether radial or cross-ply). It should always be stored vertically side by side.
- Small tires if stored flat, the position must be lug against lug.
- Tires should not be stored directly on ground for longer duration and stock should be turn over periodically.
- Inflation pressure should be reduced when tires are stored after being mounted on rims.
- It is advisable to protect tires from ultra-violet rays and weather effects with a waterproof tarpaulin.
- During storage, care to be taken that there is no water or moisture inside the tire.
- Inner Tubes, O-rings and Flaps should never be hung up or suspended. It should always be stored on shelves.

TIRE LIFE & FAILURE

Regular inspection and maintenance of the tires increases service life. During the daily visual inspection of the tires, it is important to note any damage, such as splinters and large gashes or pin hole damage that causes moisture to penetrate the tire shell. Any such damage should be repaired without causing a separation (external rubber releasing from the tire shell). Check the tension of the anti-slide devices, and make sure that they do not have any loose links or sharp parts that can damage the tires. Remove any branches or wood splinters that have got trapped between the tire and rim.

- During service tires you have to consider the correlation between speed, inflation pressure and load capacity.
- Overloading results in premature tire failure. Use the technical documentation and inflation tables which show the load and pressure figures for different operating speeds.
- Under inflation results not only in incorrect tread wear but also in ply separation and eventually lead to failure of tire.
- Over inflation makes the tire stiff and decreases its resistance against hits, leading to ply tear.

ABOUT GRI



STATE-OF-THE-ART SPECIALITY TIRE FACTORY

GRI opened its advanced speciality tire factory in January 2018. This state-of-the-art factory is the largest in Sri Lanka dedicated to produce specialty tires and the first to produce radial agriculture tires.

GRI has implemented a strategy of increased automation, utilizing leading edge and modern manufacturing machines. This has increased the degree of precision, efficiency and reduced waste. Some of the machines, that are the first of their kind in Sri Lanka, are the Marangoni Tire Building Machine, the Tire Endurance and Plunger Tester and the Comerio Calendar.

GRI TECHNOLOGY AND INNOVATION

A dedicated research and development team, an advanced testing laboratory, experienced technicians, quality and performance enhancements and precise monitoring at all stages of production ensures that GRI tires exceed the most demanding expectations from customers. GRI relentlessly develops and tests its tires under dynamic as well as static conditions.

We believe that innovation through R&D as well as continuous process improvement, both in business and in production, is a critical factor in attaining market success, both now and in the future. GRI's values of purposeful action, relentless drive, far-sighted approach coupled with a discovery mind-set are evident in every aspect of this plant.

ENVIRONMENTAL FOCUS

GRI's commitment to sustainability is evident through its 1.2-Megawatt solar panel power system, biomass boilers and fully recyclable waste and water management systems. This plant is a testament to the pioneering spirit and values embodied by all at GRI.

The GRI factory is certified by ISO 9001:2015, ISO 50001: 2011 and ISO 14001:2015.



Strategic and tactical decisions of GRI are weighed against their impact on the environment. GRI's policy is to drive sustainability along with developing Premium Specialty Tires. A key goal at GRI is to make a contribution to the world that is sustainable, and by doing so, GRI takes into consideration the well-being of not only the current global community, but also the generations to come.

GRI strives to deliver exceptional value and assured performance in specialized tires through a relentless focus on technological innovation, engineering strength and operational excellence.



GRI is a leading producer of Specialty Tires from Sri Lanka with offices in six countries and sales in over 50 countries around the world. GRI produces high-performance Agriculture, Construction and Material Handling Tires. GRI's state-of-the-art factory is the largest in Sri Lanka to produce specialty tires and the first to produce radial agriculture tires. Technological innovation, engineering strength and operational excellence have powered GRI through rapid growth to become a leader in specialty tires. GRI is certified in ISO 9001:2015 - Quality Management, ISO 50001:2011 – Energy Management and ISO 14001:2004 Environmental Management.

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