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Rubber Track



DRB Industrial

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Rubber Track

Rubber track allows for more environment friendly movements than steel type tracks. DRB rubber track maximizes operation efficiency by strengthening mobility and reducing vibration and noise while improving the driving comfort. Rubber track has the best operational stability, and widely used in industrial and agricultural machines such as excavators, combines and tractors.
Shoe pads, which can be easily installed onto steel track, excels both functionally and economically.





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Benefits of Rubber Track

- **Less damage to the ground**
  When equipment is driven on asphalt or concrete, there is less damage to these surfaces than by using steel tracks.

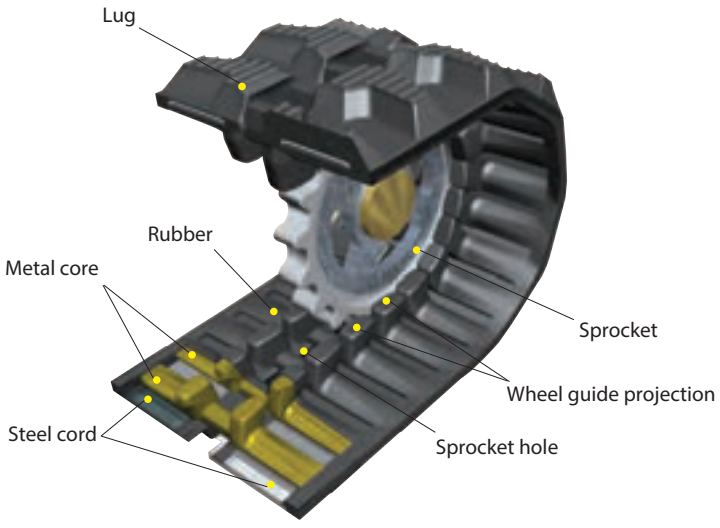
- **Low vibration and noise**
  Properly sized lug pattern effectively reduces noise and vibration. This combined with the products elasticity, results in extended machinery life as well as a significant decrease in driver fatigue.

- **Low down force**
  Decreased down force results in excellent driving performance on; soft ground, such as sand, wet surfaces, and on inclined job sites.

- **Machine weight reduction**
  The lighter weight of the rubber track means a lighter overall equipment weight, which results in a greater top speed.

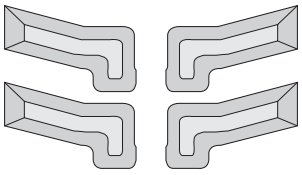
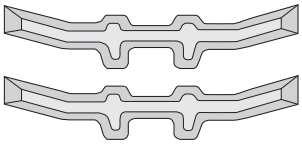
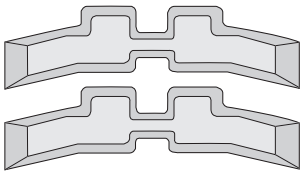
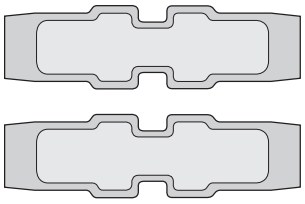
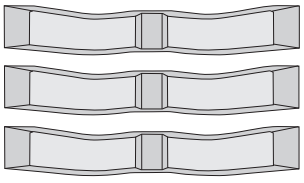
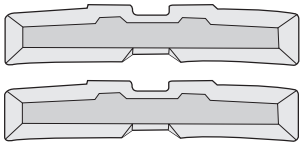
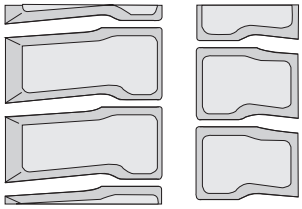
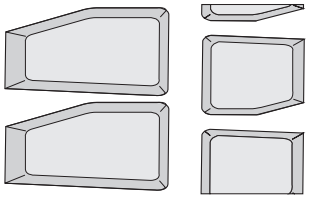
- **Superior operation capabilities**
  The rubber track is capable of twice the traction, when compared to wheeled vehicles of the same weight.
  This added traction translates into maneuverability at both low and high speeds, as well as superior towing capabilities.

Structure

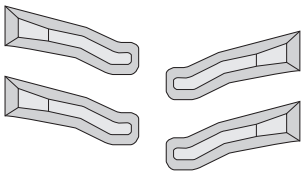
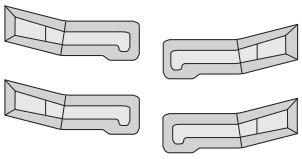
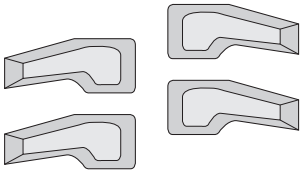
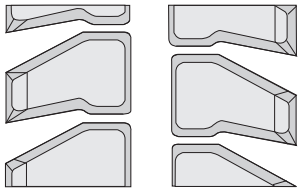
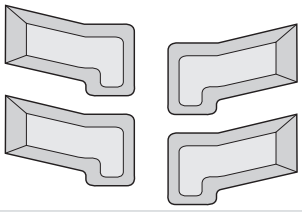
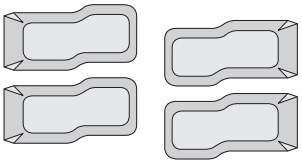
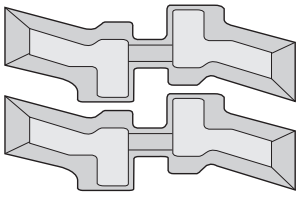
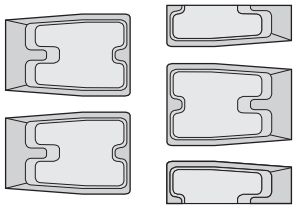


Part	Characteristics
Rubber	Made by mixing natural and synthetic rubbers, this blend is good for its anti-abrasive properties, as well as its flexibility and all weather capabilities. In swampy land soil does not adhere to the track. On harder surfaces, the mixed rubber blend minimizes noise and vibration.
Metal core (Embedded metal)	The Metal core attaches itself to the sprocket and prevents the Rubber Track from slipping off the wheel. We use a special adhesive treatment to firmly bond the Metal core to the rubber.
Steel cord	Considering both, the machine weight and the loading weight, we decide the number and the strength of steel cord that are inserted and therefore, can determine the total strength of the rubber track.

Lug Pattern

Lug	Pattern	Possible application	Suggested features
	P-I	Mini Excavator Small Size Carrier Smaller Construction Equipment	Multipurpose track for use in areas where the work demands performance on various surfaces. Low vibration and low noise.
	P-II	Small Agricultural Equipment Small Size Carrier Sprayer	For use in areas where the road surface is poor, Low vibration and low noise.
	P-III	Mini Excavator Small Size Carrier Smaller Construction Equipment	Increased Traction. Less vibration
	P-IV	Smaller Construction Equipment	For use in areas where the work demands long-distance driving. Turf Friendly-For use in areas where the work requires the machine to respect the surface. (sod, grass)
	P-V	Multi Terrain Loader	Increased Traction. Low noise and low vibration.
	P-VI	Carrier	Increased Traction. Low noise and low vibration.
	O-I	Small Construction Equipment	Increased Traction. Low noise and low vibration. Shortened turning radius.
	O-II	Small Construction Equipment	Increased Traction. Low noise and low vibration. Shortened turning radius.

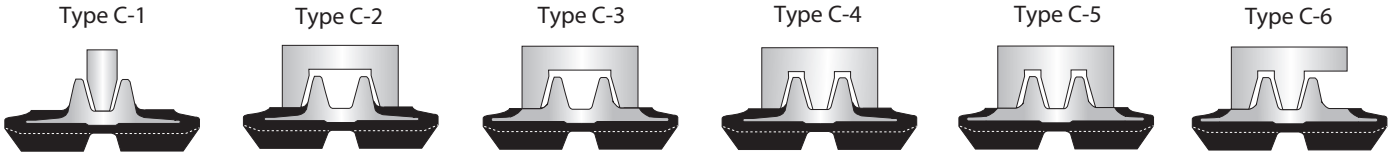
Lug Pattern

Lug	Pattern	Possible application	Suggested features
	Z-I	Small Agricultural Equipment Small Size Carrier Sprayer	Low noise and low vibration. Shortened turning radius.
	Z-II	Small Agricultural Equipment Small Size Carrier Sprayer	For use in areas where the road surface is poor. Low vibration and low noise.
	Z-III	Small Excavator Dumper Special Equipment	Zigzag pattern provides good traction with less vibration. Resistant to chips and cuts. Use in areas where the surface demands a more aggressive track
	Z-IV	Small Excavator Dumper Special Equipment	Similar to the Z1 but with larger lugs for increased surface contact.
	Z-V	Mini Excavator Small Size Carrier Mini Skid Steer Loader Smaller Construction Equipment	For use when the work demands long-distance driving and or heavy load applications, Reduced vibration and noise.
	Z-VI	Compact Track Loader	For use in when the work demands driving long distances. Low vibration and low noise. Exceptional for rider comfort
	Z-VII	Mini Excavator Small Size Carrier Smaller Construction Equipment	Increased Traction. Less vibration.
	Z-VIII	Multi Terrain Loader	Increased Traction.

Wheel Guide Type

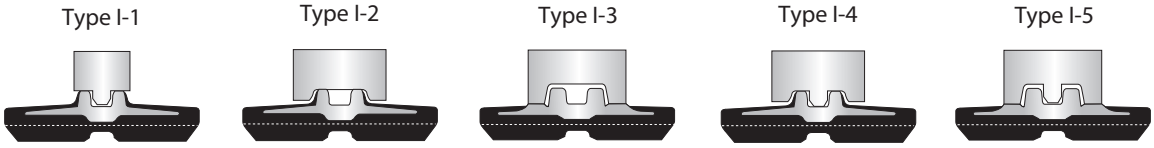
Conventional type

• With conventional type wheel guide, only rubber tracks can be used.



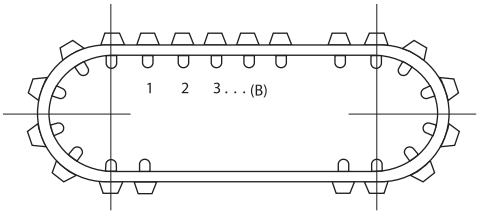
Interchangable type

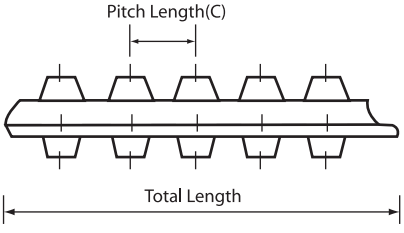
• With interchangable type wheel guide, both rubber and steel tracks can be used.

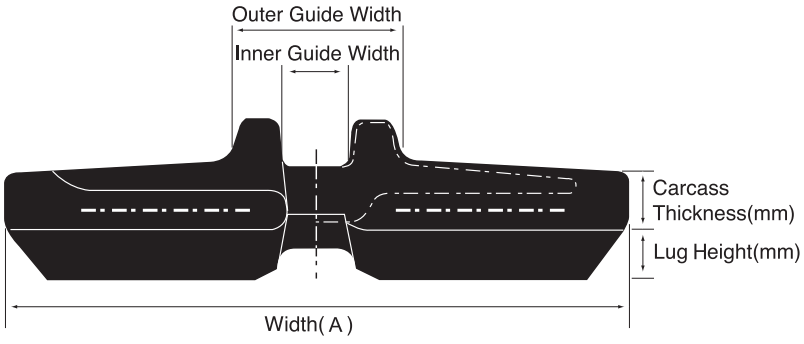


Rubber track standard mark

Width (mm) X Link (number of metal cores) X Pitch (mm)







Size indication

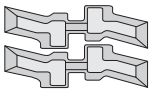
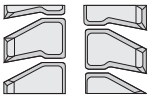
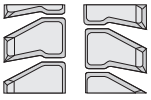
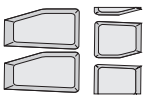
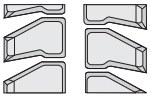
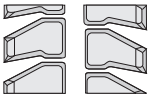
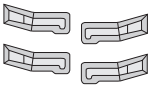
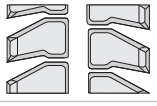
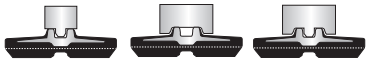
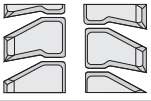
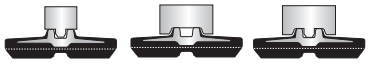
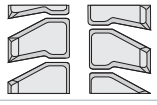
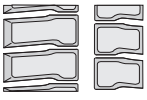
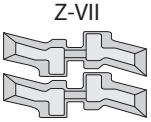
300 X 80 X 52.5P
A B C

A Width of Rubber Track(mm)
B The Number of Links
- The Number of Metal Cores Used for One Rubber Track
C Pitch - Gap of Metal Core(mm)

Standard Specifications & Production Range

Width (mm)	Links (ea)	Pitch (mm)	Carcass thickness (mm)	Lug height (mm)	Guide		Lug pattern	Roller type
					Inner (mm)	Outer (mm)		
180	34~47	60.0	15.0	15.0	22.0	58.0	Z-II	C-1 C-2 C-4
180	34~47	60.0	18.5	16.0	23.0	60.0		
180	31~42	72.0	20.5	18.0	23.0	64.0	P-I	C-1 C-2 C-4
180	31~42	72.0	25.0	18.0	23.0	74.0	Z-V P-IV	C-1 C-2 C-4
180	32~43	72.0	24.0	18.0	23.0	66.0	Z-V	C-3 C-5 C-6
200	33~41	72.0	23.5	21.5	23.0	76.0	P-II	C-1 C-2 C-4
200	33~45	72.0	20.5	18.0	23.0	64.0	P-I	C-1 C-2 C-4
200	34~45	72.0	24.0	18.0	23.0	63.0	Z-V	C-1 C-2 C-4
230	60~84(Even)	48.0	24.5	24.5	25.0	72.0	Z- III	I-1 I-2 I-4
230	38~56	72.0	23.5	23.0	23.0	76.0	Z-II Z-V	C-1 C-2 C-4
230	39~56	72.0	24.0	12.0	23.0	76.0	P-IV	C-1 C-2 C-4
230	38~56	72.0	25.0	19.0	24.0	64.0	Z-V	C-3 C-5 C-6

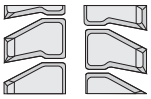
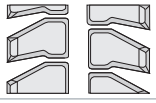
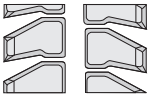
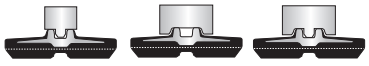
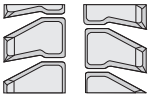
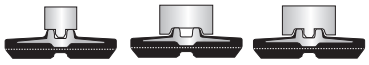
Standard Specifications & Production Range

Width (mm)	Links (ea)	Pitch (mm)	Carcass thickness (mm)	Lug height (mm)	Guide		Lug pattern	Roller type
					Inner (mm)	Outer (mm)		
230	30~37	96.0	24.5	25.0	25.0	72.0	Z-VII 	I-1 I-2 I-4 
250	60~88(Even)	47.0	27.0	21.0	25.0	68.0	Z-IV 	I-3 I-5 
250	60~88(Even)	48.0	30.0	24.0	25.0	72.0	Z-IV 	I-1 I-2 I-4 
250	60~88(Even)	48.5	30.0	23.0	24.0	66.0	O-II 	I-3 I-5 
250	70~92(Even)	52.5	30.0	24.0	29.0	75.0	Z-IV 	I-1 I-2 I-4 
250	70~92(Even)	52.5	30.0	24.0	40.0	90.0	Z-IV 	I-1 I-2 I-4 
250	37~57	72.0	23.0	21.5	23.0	78.0	Z-II 	C-1 C-2 C-4 
300	70~98(Even)	52.5	33.0	23.5	30.0	82.0	Z-IV 	I-1 I-2 I-4 
300	70~98(Even)	52.5	33.0	23.5	40.0	90.0	Z-IV 	I-1 I-2 I-4 
300	70~98(Even)	52.5	33.0	23.5	30.0	87.0	Z-IV 	I-3 I-5 
300	70~86(Even)	55.5	33.0	23.5	30.0	82.0	O-I 	I-3 I-5 
300	36~48	109.0	31.0	23.0	30.0	83.0	Z-VII 	I-3 I-5 

Standard Specifications & Production Range

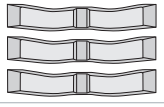
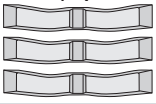
Width (mm)	Links (ea)	Pitch (mm)	Carcass thickness (mm)	Lug height (mm)	Guide		Lug pattern	Roller type
					Inner (mm)	Outer (mm)		
320	68~84(Even)	54.0	36.0	25.0	30.0	83.0	Z- III	I-1 I-2 I-4
320	46~58	90.0	48.0	30.0	40.0	95.0	P-VI	C-2 C-4
350	70~92(Even)	52.5	32.0	25.0	40.0	88.0	Z-IV	I-1 I-2 I-4
350	70~92(Even)	54.5	40.0	24.0	40.0	91.0	Z-IV	I-3 I-5
350	88	55.0	33.5	23.0	30.0	82.0	Z-III	I-1 I-2 I-4
350	68~78(Even)	75.5	40.5	25.0	40.0	100.0	O-II	I-3 I-5
400	68~80(Even)	72.5	40.0	25.0	51.0	106.0	Z-IV	I-1 I-2 I-4
400	68~78(Even)	72.5	43.0	25.0	38.0	92.0	Z-IV	I-1 I-2 I-4
400	68~80(Even)	73.0	44.0	25.0	51.0	106.0	Z-IV	I-1 I-2 I-4
400	68~80(Even)	72.5	45.0	23.0	49.0	105.0	Z-IV	I-3 I-5
400	68~80(Even)	75.5	45.0	25.0	38.0	97.0	O-II	I-3 I-5
450	68~76(Even)	81.0	46.5	30.0	57.0	135.0	Z-IV	I-1 I-2 I-4

Standard Specifications & Production Range

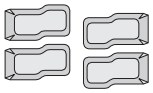
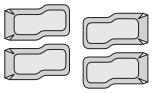
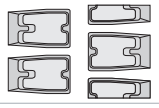
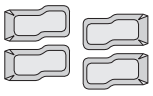
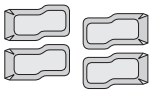
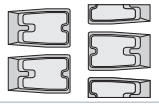
Width (mm)	Links (ea)	Pitch (mm)	Carcass thickness (mm)	Lug height (mm)	Guide		Lug pattern	Roller type
					Inner (mm)	Outer (mm)		
450	68~80(Even)	81.0	47.0	30.0	44.0	112.0	Z-IV 	I-1 I-2 I-4 
450	68~92(Even)	71.0	51.0	30.0	44.0	114.0	Z-IV 	I-1 I-2 I-4 
450	72, 74, 76	83.5	58.0	30.0	44.0	114.0	Z-IV 	I-1 I-2 I-4 
500	76~84(Even)	92.0	62.0	35.0	64.0	154.0	Z-IV 	I-1 I-2 I-4 

* Even : EvenNumber

Jointless (Non - metalcore)

Width (mm)	Links (ea)	Pitch (mm)	Carcass thickness (mm)	Lug height (mm)	Guide		Lug pattern	Roller type
					Inner (mm)	Outer (mm)		
381	42	101.6	24.0	23.0			P-V 	
457	51~56	101.6	24.0	23.0			P-V 	

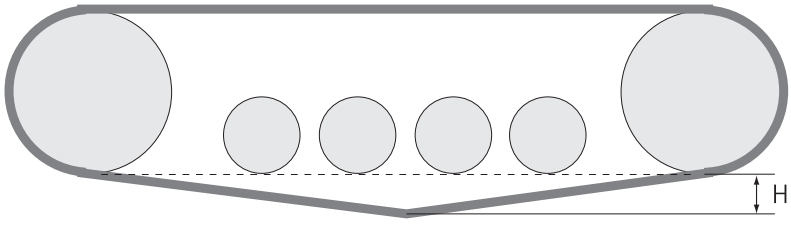
Jointless

Width (mm)	Links (ea)	Pitch (mm)	Carcass thickness (mm)	Lug height (mm)	Guide		Lug pattern	Roller type
					Inner (mm)	Outer (mm)		
320	49~56	86.0	53.0	22.0	48.0	96.0	Z-VI 	C-2 C-4 
320	49~56	86.0	37.0	25.0	37.0	83.0	Z-VI 	C-3 C-5 
320	49~56	86.0	49.0	26.0	46.0	95.0	Z-VIII 	C-2 C-4 
450	46~52	100.0	37.0	33.0	48.0	103.0	Z-VI 	C-3 C-5 
450	50~56	86.0	55.0	20.0	47.0	95.0	Z-VI 	C-2 C-4 
450	50~56	86.0	49.0	26.0	48.0	95.0	Z-VIII 	C-2 C-4 

Handling Recommendations

Tension

- Check the tension at the center track roller EVERY 50 HOURS of work (H =10~15mm)



Proper driving technique

- Avoid high-speed turning on heavily abrasive grounds and enlarge the turning radius.
- Upon completion of the job, wash off any remaining debris such as salt, oil mud etc, and dry.
- Drive slowly in areas where the working conditions are bad, such as gravel roads or mountain routes, and certain construction sites.
- Check the sprocket's condition for abrasion regularly.

Trouble-Shooting Guide

	Symptoms	Causes	Remedy
Rubber track edge is cut or split		Foreign Substances or Uneven Driving Surfaces • When driving on rugged surfaces or a surface that has many foreign objects, such as sharp stones, theedge of the rubber track may be twisted and the rubber can be cut or split. • Phenomenon : Usually, happens on one part of track.	• Avoid driving on surfaces which have sharp projections and a rugged road surface. • If possible, avoid long distance driving on asphalt or concrete which causes high friction to the rubber track and load on to a truck or transportation vehicle.
		Caused by Machine Interference • When rubber track tension is not up to specifications, the rubber track can become loose and slip off the sprockets. Damage can occur when the sprocket, or track roller catches the loose rubber track and tears it. • During operation, the track can fold due to substances such as mud or straw caught between the frame and the rubber track. As a result the distance between the two narrows. • Phenoemnon : When one part of the rubber track is cut or split, the track may continue to tear or cause tears in other places on the track.	• Ensure the rubber track is tensioned properly. • After operation is finished remove foreign substances such as mud from around the frame and rubber tracks.
The steel cord breakage		Excessive Pressure From Outside Causing Steel Cord Breakage • When the rubber track is not tensioned properly, it can lead to detracking. • Under excessive outside pressure, the track roller and sprocket can shift up on to the center guide plate and increase pressure on the steel cord. • When stones or foreign substances become jammed into the steel core, pressure mounts on the idler, track roller, and sprocket. • Due to rapid turning and excessive pressure of repeated driving the steel cord can break.	• Regularly check rubber track tension and maintain correct tension. • Avoid road surfaces that have many stones, foreign substances and minimize rubber track impact by driving slowly. • Avoid rapid turning and ensure operator uses wide turns.
		Steel Cord Breakage Corrosion Caused by Gouging • When the lug is gouged by foreign substances such as sharp stones, moisture permeates through the rubber track gouge causing steel cord corrosion and breakage.	
Imbedded metal breaking away		Imbedded Metal Breaking Away Due To Excessive External Force • If the rubber track is not properly tensioned, when it rotates or changes, excessive pressure will build up on the idler or center guide plate causing breakage. • If *sprocket breaks (see side drawing) pressure mounts on the metal core causing it to break also.	• Check the rubber track tension every 50 hours of work. Maintaining proper tension at all times can also extend component life. • Ensure operator turns slowly using wide turns. • When driving on roads that have many rocks, minimize rubber track impact by driving slowly. • After each usage, thoroughly wash with water and keep dry.
		Imbedded Metal Breaking Away Caused By Corrosion • Imbedded metal adheres to rubber by adhesives but adhesion is reduced by chemicals, compost, or salt. After many hours of use the metal core may then break away.	*sprocket break 

Trouble-Shooting Guide

	Symptoms	Causes	Remedy
The lug part (Tread part) becomes gouged		• When driving or during operations, the gouge on the lug is caused by sharp stones or projections on the road surface. • The road surface has sharp stones or projections that cause deep gouges when rapidly turning and changing direction. • When the gouge extends to the inside of the steel cord, corrosion may occur which is also a cause of steel cord breakage.	• Drive slowly. • Make a large radius when turning and changing directions. • If traveling long distance, load the machine on a truck or transport for delivery to the job site.
Abrasions appear in the base rubber		• Under the track rollers small rocks and sand may become trapped causing abrasions to appear. With continued operation, this trapped material wears away the rubber and exposes the metal core of the rubber track. (Especially happens on combines and transportation vehicles) • If material becomes trapped, greater abrasions can occur depending on soil consistency, such as gravel, pebbles or grainy soil. • If this occurs too often, the steel cord can separate from the rubber track and break due to water penetration.	• Cleaning must take place after operating in mud or swamp by thoroughly hosing off the track rollers. • When making turns, ensure that the operator turns slowly using wide turns in construction areas with lots of sand and small rocks.
Cracks and rips occur on the sides of the rubber track		• When operating the rubber track on narrow or rough roads, the sides of the rubber track may become bent so that cracks or rips occur.	When operating the rubber track, be cautious in the following situations. • Narrow roads • Logging areas in the mountains • Rough areas • Construction areas which have broken concrete pieces
Abrasions on lug		Conditions of Early Abrasions • Continuous or high speed direction change on concrete and asphalt which causes high friction. • Driving and working on roads with sharp projections such as stones. Severe abrasions can reduce the height of the lug. This height reduction can cause a loss of traction power and damage between the lugs.	• For long distances over concrete or asphalt, to prevent abrasions, load the rubber track onto a truck to transport. • Refrain from sharp turns and multiple direction changes to prevent severe abrasions on the lug.
Cracking on lug (Tread part)		Ozone Cracking • Rubber on lug stretches when it is at the end of the rubber tracks, close to the idler and sprocket. • Ozone cracking on this part is caused by long term parking or storage of the machine. Flection Fatigue Cracking • Flection fatigue cracking results from repeated stretching of rubber by driving. If it continues, cracking can occur on the entire rubber track surface.	• Drive rubber track at least once a month in order to prevent fatigue in specific places. • Prevent direct sunlight and keep dry with covers.

Caution

Safe operating procedure

Caution

- Before using the Rubber Track, be sure to check the tension and maintain the prescribed(regulated) tension.
- Drive slowly in areas where the road surface is unstable such as forests, some construction sites, and or, unpaved roads. High speed in these areas can result in breakage of the Rubber Track.
- Remove any foreign objects such as tree branches, leaves, etc. caught between the frame and the Rubber Track, after operation. If the objects are not removed, the gap between Rubber Track and the frame will shorten, and this can make the Rubber Track more susceptible to cracks and tears.
- Regularly check the state of the sprocket, track roller, idler, and the imbedded metal guide for abrasion. Excessive or unusual abrasion or scarring can shorten the life span of the Rubber Track.
- Enlarge the turning radius when turning and changing directions, in area of high friction, such as asphalt, to avoid premature breakage of the Rubber Track.
- In cases where the job site locatiion is far away, transport the machine by other vehicles.
  Continuous operation over long distances for an extended period of time is not recommended.
- Driving the Rubber Track through narrow passages on job sites can fold the edges of the Rubber Track. Excessive bending can lead to breakage.
- When checking the Rubber Track, or it's components, ensure that it is done on even ground and equipment has been turned off.
- When exchanging used components, such as sprocket, track roller, idler or imbedded metal guide for new ones, use the original part. If the parts are not original life span of the Rubber Track may be shortened.
- Use the Rubber Track for the prescribed purposes only.
- Don't burn used or damaged Rubber Tracks, as noxious fumes are emitted and can cause harm if inhaled.

Tips on storage and handling of the rubber track

Caution

- In case of long term storage, avoid direct sunlight and keep indoors or under a protective cover.
- When there is no demand for the Rubber Track, be sure to rotate the Rubber Track at least once a month to avoid intensive fatigue being placed on one point continuously.
- When carrying or handling the Rubber Track, be sure to use the proper transporting tool or equipment. Without the proper tool or equipment, an incident can occur.
- When transporting the Rubber Track with the forklift, be aware that the prongs can damage the product.

Tips on interchanging the rubber track

Caution

- When interchanging the Rubber track, be sure to stably anchor the machine on even ground. If the machine is not anchored correctly, it can lose it's balance and overturn.
- After checking the operating status of the related parts (the sprocket, the idler and the track roller), replace each part with originals as needed.
- Be sure all equipment is safely switched off before applying or removing the Rubber Track.
- When interchanging the Rubber Track, adjust the center of the sprocket and the idler accordingly. If the center of the sprocket does not coincide with the center of the idler, premature breakage can occur.
- After application, verify that the tension is adjusted as prescribed.
- When interchanging the Rubber Track, be sure not to apply excessive force when using prying objects, such as a lever.

Development

2D & 3D Modeling (AutoCAD / CATIA V5)

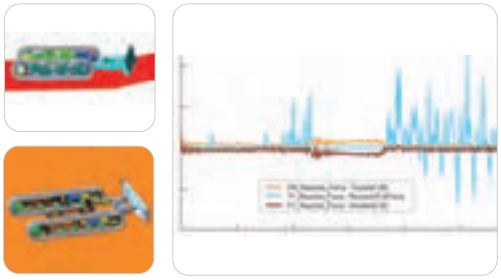
Part Design → Assembly Design



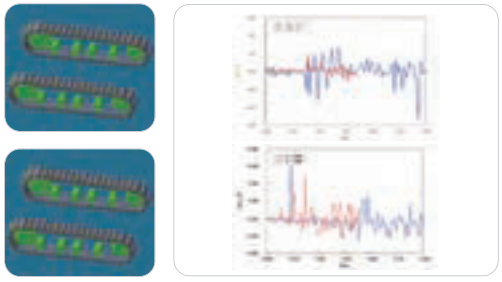
Remodeling

Dynamic Analysis(Recurdyn)

Slope

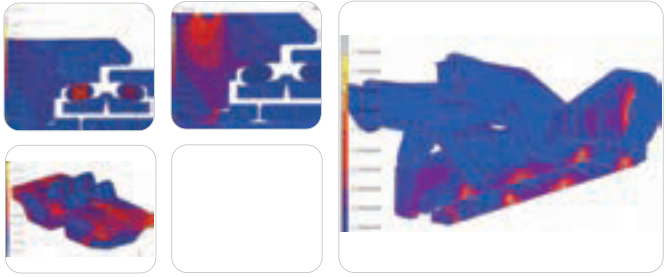


Detracking

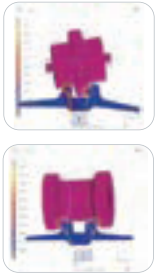


Static Analysis(Hypermesh/Marc)

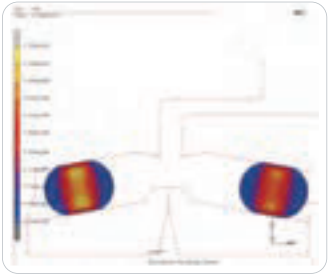
Structure Analysis



Detracking Analysis



Sealing Analysis



Test Field

DRB Undercarriage Field Test Site

- Size : 52,700sq.ft
- Road Conditions : Dust, Pebbles, Sand, Slope, Fixed Protrusions and so on.
- Operation Time : 8 hrs/ day

Using this facility, we can provide more reliable test data and make our customers more satisfied.

DRB Industrial



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