

**Innovative carton flow and  
pallet flow ideas to increase  
warehouse efficiency.**

**More storage flexibility and  
less maintenance.**



**CARTON FLOW**



**PALLET FLOW**



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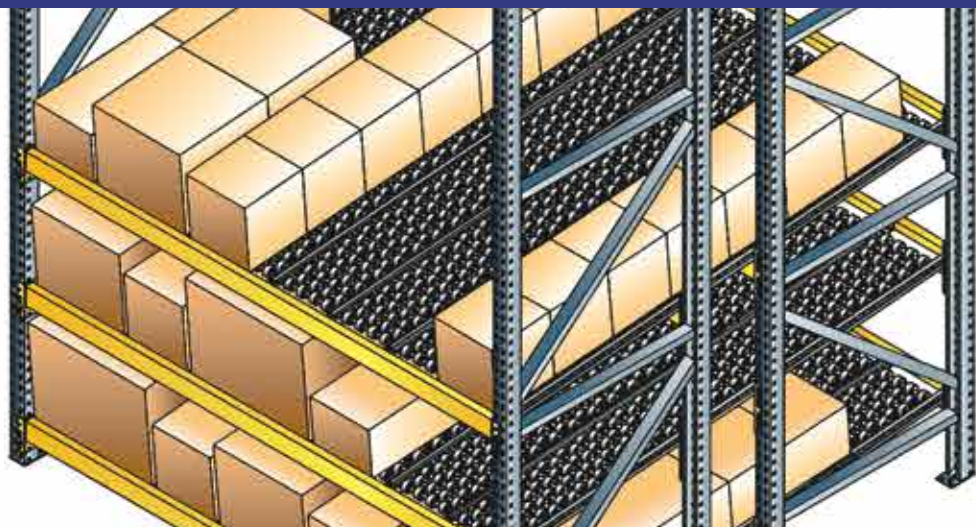
CONCENTRIC STORAGE SYSTEMS, INC.

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**PRODUCT CATALOG**

## Dura-Flo™ Systems



### DURA-FLO AND DURA-FLO D2 CARTON FLOW PRODUCTS

- Full-bed of rollers for carton size flexibility
- Dura-Flo™ drops into structural or roll-formed pallet rack
- Dura-Flo™ D2 fits any manufacturers' carton flow shelves
- Easy installation – no tools required

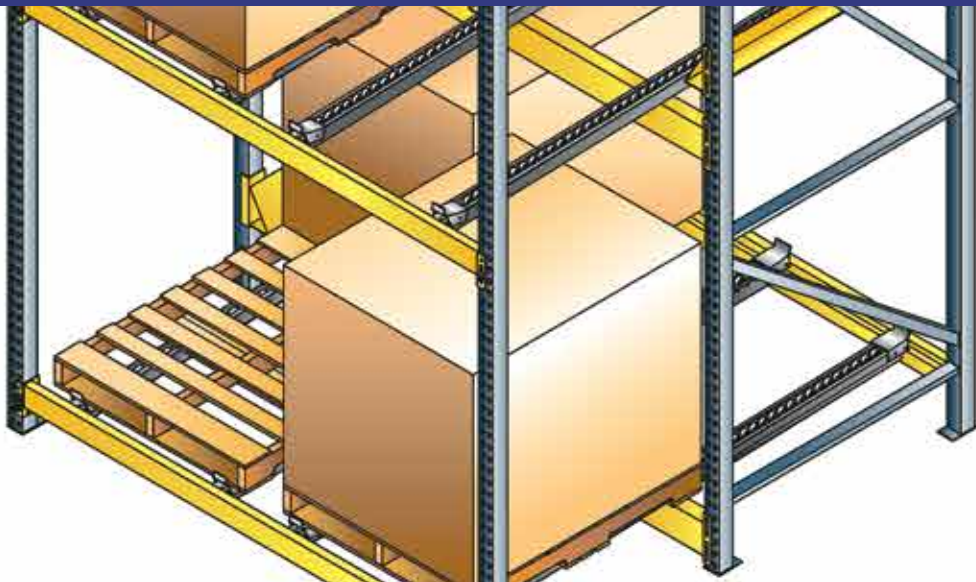
## RhinoTrac™ Systems



### RHINOTRAC AND RHINODECK CARTON FLOW PRODUCTS

- Full-width aluminum rollers in pre-assembled lanes
- RhinoTrac™ drops into structural or roll-formed pallet rack
- RhinoDeck™ fits any manufacturers' carton flow shelves
- Easy installation – no tools required

## Pallet Flow Systems



### CSS PALLET FLOW SYSTEMS

- Full range of products available for any weight or size pallet
- Polycarbonate resin plastic wheels or metal skate wheels
- Pallet braking systems for deep lane pallet flow
- Wide-Roller option for full-width pallet support

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# Carton Flow Product Overview

- More cartons - Low profile shelves
- More surface support - Solid bed or full-width
- Less maintenance - Heavy-duty side channels & axles
- All carton flow products drop-in with no tools required

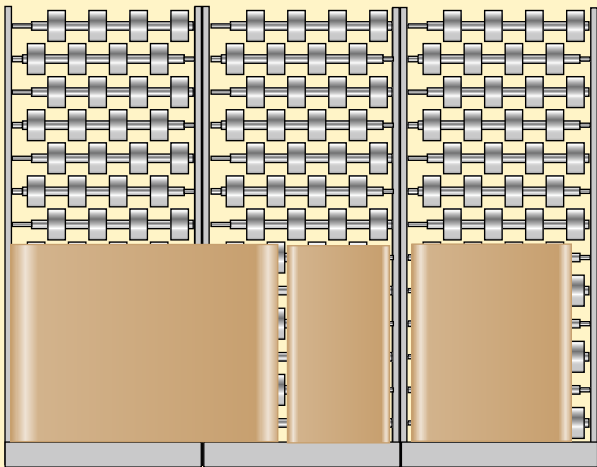
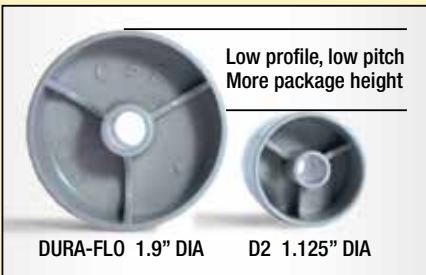


## Carton Flow Options Comparison

### DURA-FLO™

**DURA-FLO and D2**

- Continuous bed of rollers
- Accommodates any mix of carton sizes
- Available in 12" and 16" wide lanes
- Rollers can be spaced on 2", 3" or 4" centers



Full-bed of rollers provide maximum space utilization with no wasted space even when carton sizes change.



### DURA-FLO™

- 1.9" diameter plastic wheels
- 1" wide flow surface
- 2.28 high galvanized steel side channel
- Fits any pallet rack new or retrofit



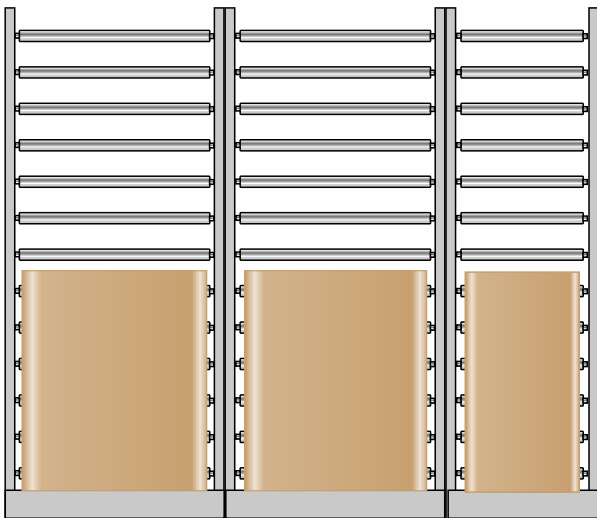
### DURA-FLO™ D2

- 1.125" diameter plastic wheels
- 1.4" wide flow surface
- 1.125" high galvanized steel side channel
- Fits any carton flow new or retrofit

### RHINOTrac™

**RHINOTrac and RHINODeck**

- Separately defined lanes for flow
- Roller widths are available in 6", 9", 12" and 15"
- Rollers can be spaced on 1", 2" or 3" centers



### RHINOTrac™

- 0.75 diameter aluminum rollers
- 6", 9", 12" or 15" wide rollers
- 2.5" high galvanized steel side channels
- Fits any pallet rack new or retrofit

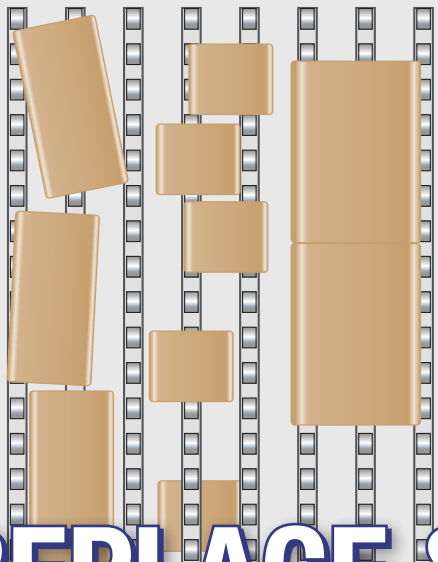


### RHINODeck™

- 0.75 diameter aluminum rollers
- 6", 9", 12" or 15" wide rollers
- 1.1" high galvanized steel side channels
- Fits any carton flow new or retrofit

## COMPATIBLE WITH ALL MAJOR PALLET RACK BRANDS

Traditional carton flow systems utilize individual tracks which are difficult to install and result in maintenance issues and hangups causing picking inefficiencies.



## REPLACE & UPGRADE

Convert any existing pallet racking or carton flow shelving unit into a brand new carton flow system by simply dropping in pre-assembled lanes of DURA-FLO or RHINOTrac

**Reduce pick costs with more reliable flow and less hang-ups**

**Improved inventory control, no product falling between tracks**

## SUPERIOR CARTON FLOW SYSTEMS

- More cartons
- More surface support
- More slotting flexibility

FreeWheeler™ maintenance-free, high-strength wheels can be used in a wash-down environment.

Pre-assembled, drop-in tracks fit most existing pallet racks for simplified installation.

Heaviest carton flow axle on the market - 5/16" diameter for less deflection.

Specially lubricated 5/16" solid steel axles provide better flow.

Superior strength from specially designed channels.

No tools required to replace wheel assemblies. Axles snap into place.

**Beam Hooks** provide easy and flexible attachment to cross beams on most racks. Extension feet also available for roll-formed beams.

## ROLL-FORMED BEAM MOUNT



**DISCHARGE END**  
Adjustable end bracket rests in step of beam to allow beam to act as box stop.



**CHARGE END**  
Heavy-duty end-bracket rests in step of beam and adjusts incrementally to adjust pitch for proper flow

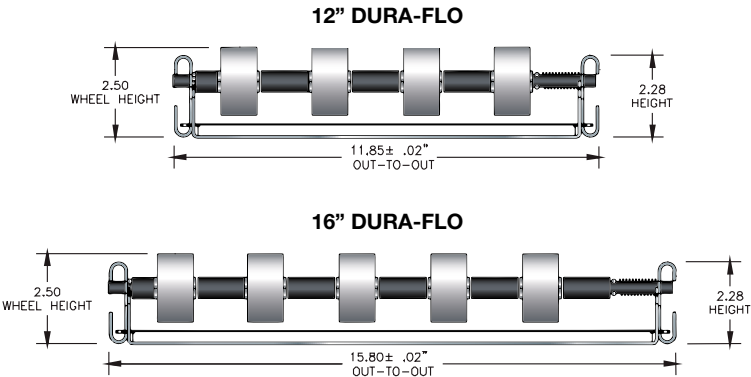
## Dura-Flo™ Carton Flow SPECIFICATIONS



Dura-Flo Lane Indexers are easy to reposition.

### Dura-Flo Carton Flow System Options and Accessories

- Lane indexers
- Cantilevered high-mount extension
- Low-mount & high-mount applications
- Forward tilt shelf
- High-mount rear extension
- Splice plates for custom lengths
- Attach to beams with beam hangers



Dura-Flo structural beam mount



- ✓ Dura-Flo™ utilizes patented FreeWheeler™ technology for easy flow and durable service.
- ✓ FreeWheeler™ patterns on 2, 3, or 4-inch centered axles accommodate various package configurations for superior carton flow and support.



Contiguous wheel span creates a deck for mixed package width on the same shelf maximizing space and efficiency.

### Dura-Flo Wheel Size

- 1.9-inch diameter
- 1-inch wide flow surface

### Dura-Flo Wheel Axle Center Options

Axle Center	Minimum Carton Depth
2 inch	6 inch
3 inch	9 inch
4 inch	12 inch

### Dura-Flo Carton Flow System Capacities (lbs. per sq. ft.)

Unsupported Span (in.)	Capacity	
	12 inch width	16 inch width
48	137	102
60	87	66
72	61	46
84	45	33
96	32	24
108	23	17
120	16	12
132	12	9

### 18 Gauge Channel Standard

- 16 gauge available
- 14 gauge available

### DURA-FLO D2 LOW PROFILE CARTON FLOW SYSTEMS

**Dura-Flo D2 Low Profile Carton Flow System** modeled after the original Dura-Flo system that creates a “bed of wheels” for fast, flexible carton flow. D2 features a low-profile, low-pitch design requiring no more than a drop of one inch per foot. Heavy-duty construction provides more than twice the load capacity of standard carton flow tracks and D2 easily drops right into your existing shelf structures.

#### Compact Size With Full Size Performance

Patented maintenance-free, 1.125 inch wheels with self-lubricating axles for smooth flow with virtually no hang ups.

Pre-assembled, drop-in shelves fit most existing carton flow beams for simple installation without tools.

Adjustable entry and exit brackets mount into beam connectors with no loss of vertical clearance. Ideal for pick to light systems and will not interfere with existing labeling.

Wide variety of options, including extension feet attachments for mounting to any manufacturers' carton flow shelves.

Heavy-duty, hardened steel axles  
No tools required – just snap axles into place.

18-gauge specially designed “C” channel provides superior strength.

#### Full “bed of wheels” for superior carton flow



Twice the wheel coverage of traditional carton flow tracks for virtually no hang-up.



Lane indexers are easy to reposition.

Superior tracking eliminates the need for full-length dividers.



### EASY RETROFIT

Use with carton flow shelves and drop in Dura-Flo D2 lanes for improved warehouse space utilization.

#### Dura-Flo Wheel Axle Center Options

Axle Center	Minimum Carton Depth
2 inch	6 inch
3 inch	9 inch
4 inch	12 inch

#### Dura-Flo D2 Wheel Size

- 1.125" Diameter Wheel
- 1.4" Wide Surface

#### Track Profile

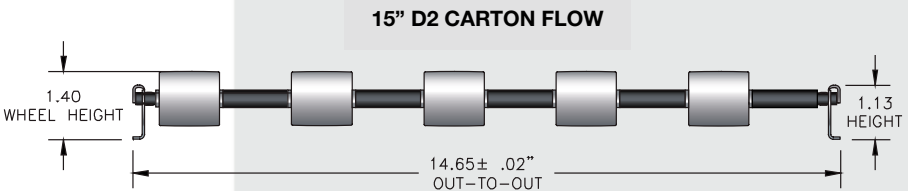
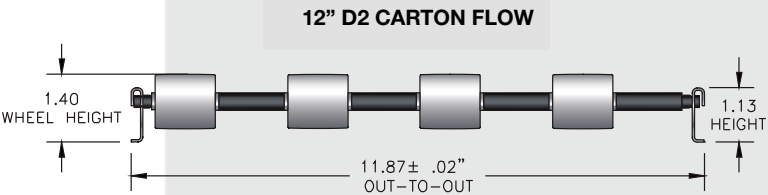
- 1.125" steel side channel
- 1.375" overall track height

#### Carton Requirements

- Subject to weight and length limits
- Not suitable for cartons with raised “lip” around outer edge

#### Carton Flow System Capacities (lbs. per sq. ft.)

Load capacity is determined by the capacity of the shelf. Carton flow shelves offering support at a minimum of 24" centers will have in excess of 50 lbs. per square foot capacity. Axles and wheels are rated at a higher capacity than side channels. Dura-Flo D2's heavy-duty design will hold up to busy picking operations, and eliminate the need for constant plastic wheel track replacement.



### UPGRADE EXISTING SYSTEMS TO D2



Entry and exit brackets mount into carton flow shelf members with no loss of clearance and no labeling disruption.

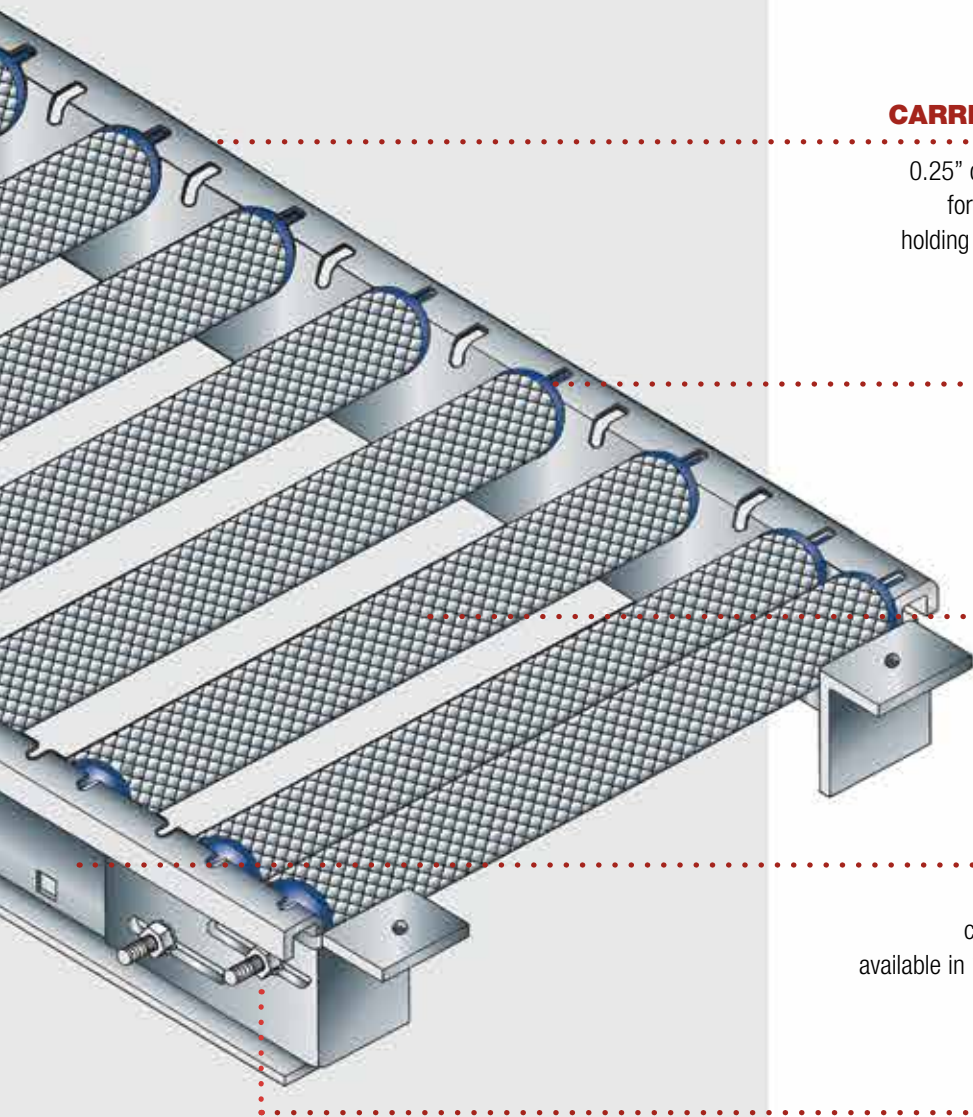
### D2 ADVANTAGE

No stop required, no loss of shelf clearance



Easily replace wheel assemblies, just drop in new axle.

FULL WIDTH ROLLER CARTON FLOW TRACK



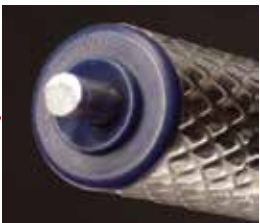
CARRIAGE BOLT TIE RODS

0.25" dia. carriage bolt tie rods allow for rapid roller replacement while holding side channels rigid and sturdy



BUSHING

Superior bushing design



ROLLER

0.75" dia. aluminum diamond embossed damage resistant rollers with heavy-duty steel axles



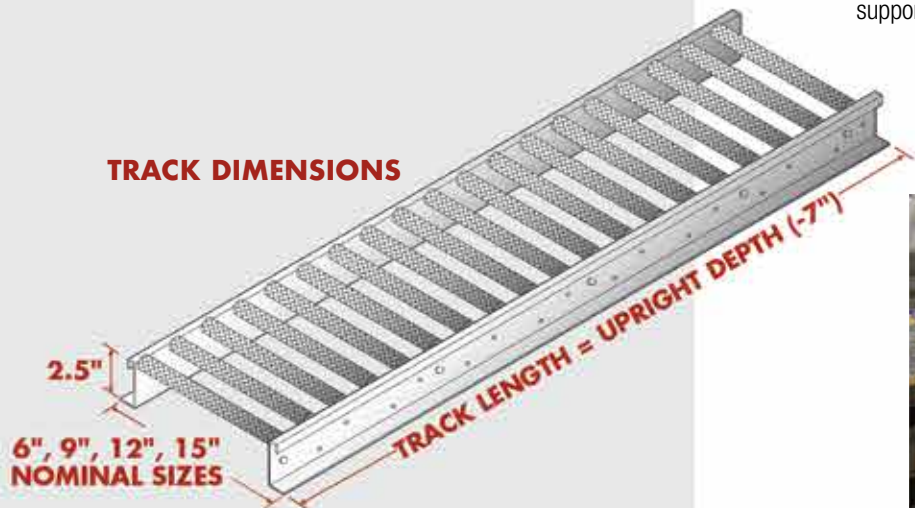
SIDE CHANNELS

2.5" high galvanized steel side channels for increased capacity available in 16 ga., 14 ga. and 12 ga. steel



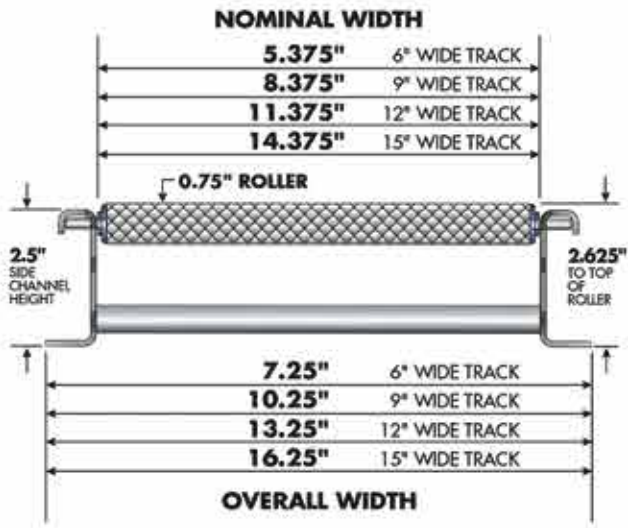
TRACK SUPPORT

High-strength, integrated track supports adjust to assure proper fit

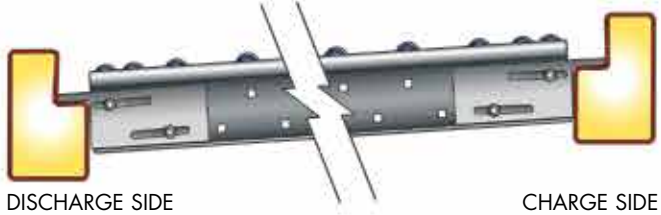


RhinoTrac pick module application - multi-level

RHINOTrac Roller Dimensions



TRACK SUPPORT



Slotted end supports adjust to vary length and insure proper fit

Track Capacity Chart

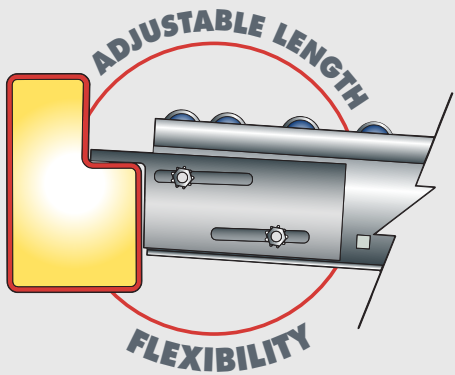
TRACK CAPACITY SPAN PER FOOT*			
TRACK SPAN	LBS. PER LIN. FT.	TRACK SPAN	LBS. PER LIN. FT.
60"	160.4	91"	45.2
63"	138.5	93"	43.1
66"	120.5	96"	39.2
69"	105.4	99"	35.7
72"	92.8	102"	32.6
75"	82.1	105"	29.9
78"	73.0	108"	27.5
81"	65.2	111"	25.3
84"	58.4	114"	23.4
87"	52.6	117"	21.6
90"	47.5	120"	20.0

**Note:** Track capacity may be limited by bracket capacity. Contact Springfield engineering office for applications of more than 400 lbs/lane.

\*Capacity based on L/240 deflection calculation

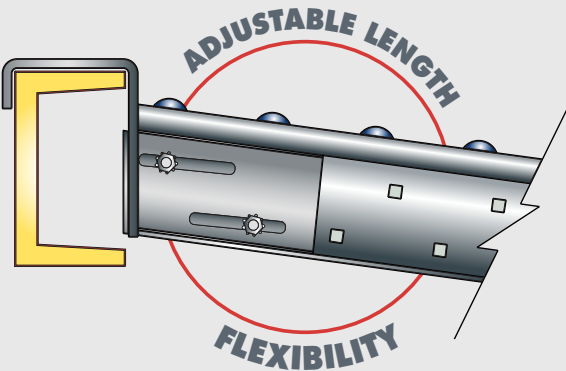
Track capacities shown for 16 gauge side channels. 14 gauge and 12 gauge available for heavier loads.

RHINOTrac END SUPPORTS



Roll-Formed Beam Bracket

EASY INSTALLATION



Structural Beam Bracket

Pre-installed heavy-duty steel end brackets allow for easy drop-in installation

Brackets directly support side channels and allow track to rest below the beam and use beam as end stop

Slotted adjustability of end supports allow the flexibility to vary length for field adjustment



STRUCTURAL

Integrated brackets with adjustability for structural beams

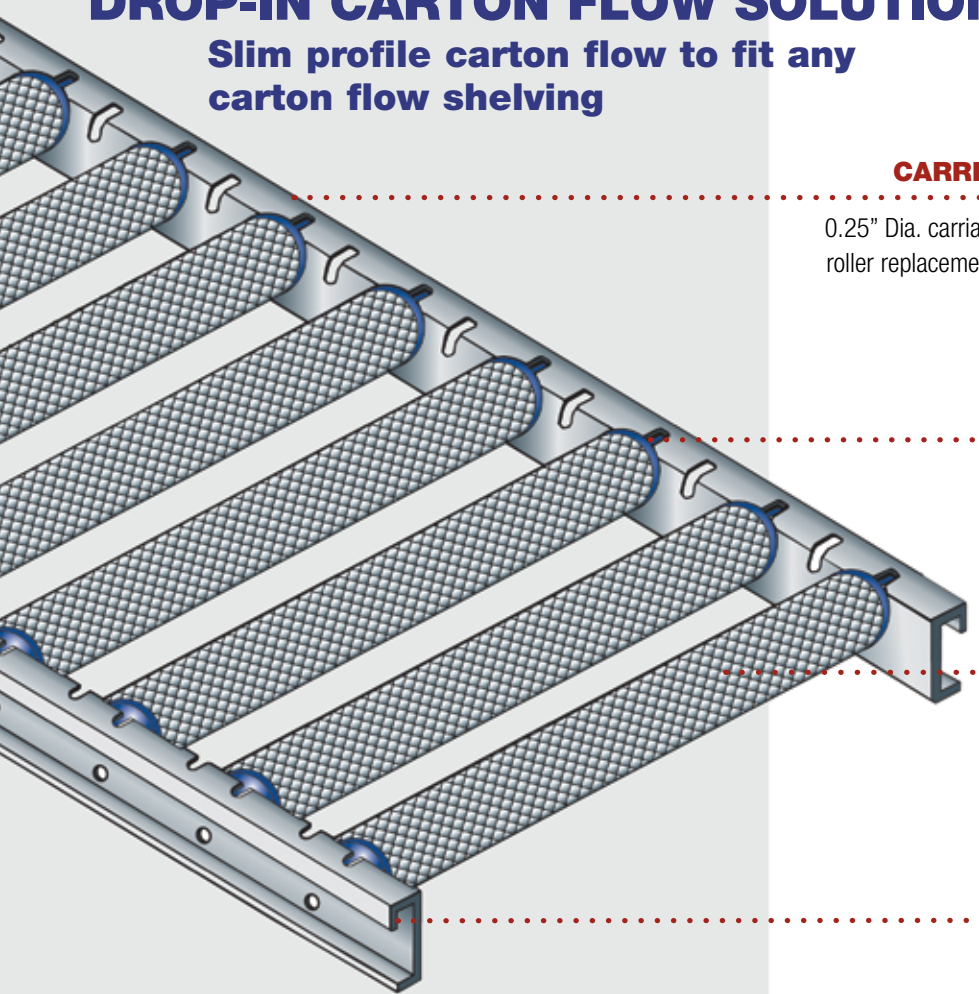


ROLL-FORMED

RhinoTrac brackets rest on beam ledge

DROP-IN CARTON FLOW SOLUTION

Slim profile carton flow to fit any carton flow shelving



CARRIAGE BOLT TIE RODS

0.25" Dia. carriage bolt tie rods allow for rapid roller replacement while holding side channels rigid and sturdy



BUSHING

Superior bushing design



ROLLER

0.75" Dia. aluminum diamond embossed damage resistant rollers with heavy-duty steel axles



SIDE CHANNELS

1.1" High galvanized steel side channels

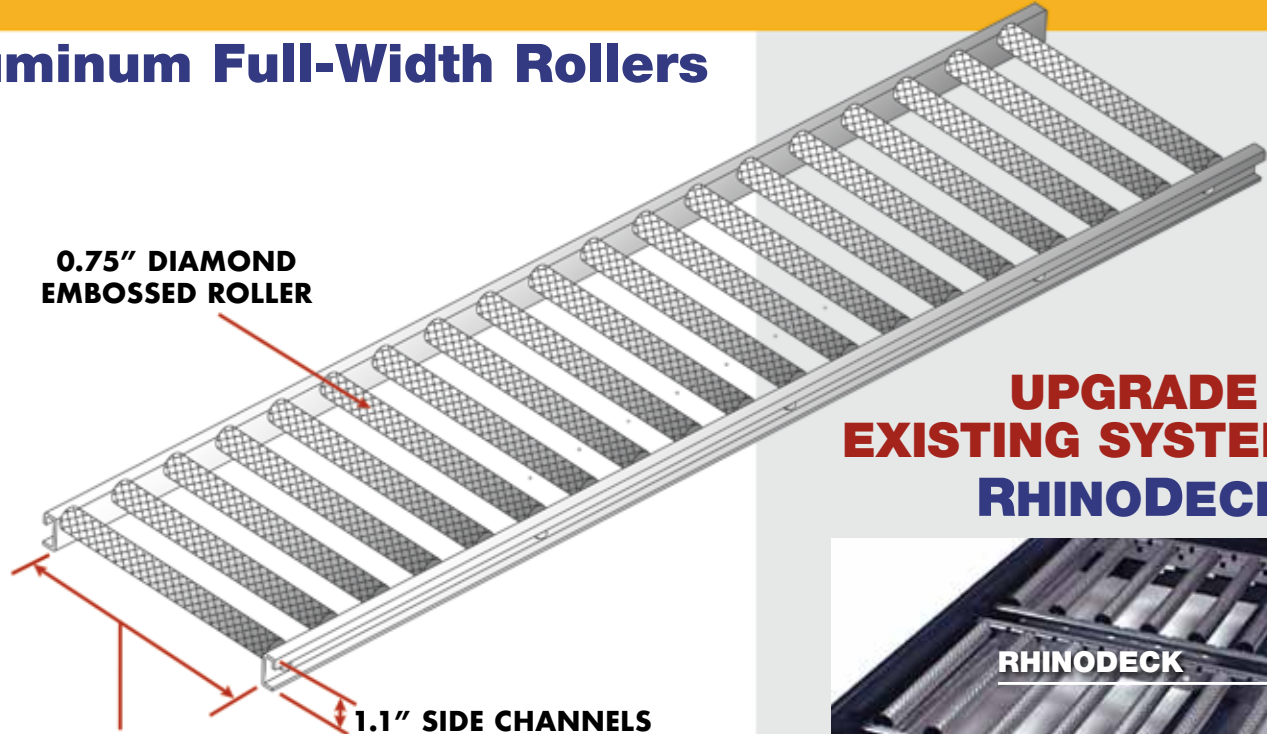


Sturdy Aluminum Full-Width Rollers

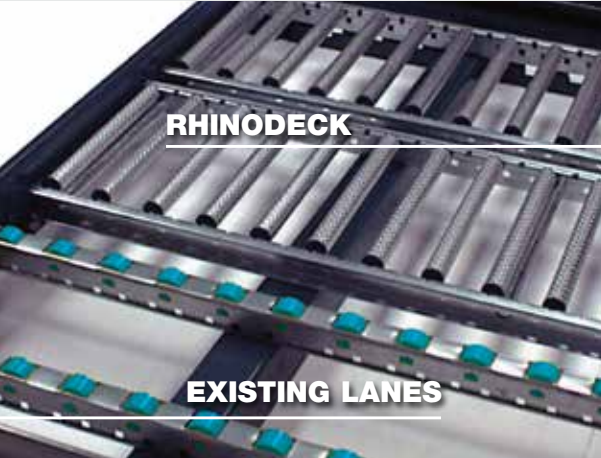
0.75" DIAMOND EMBOSSED ROLLER

6", 9", 12", 15" NOMINAL ROLLER SIZES

1.1" SIDE CHANNELS



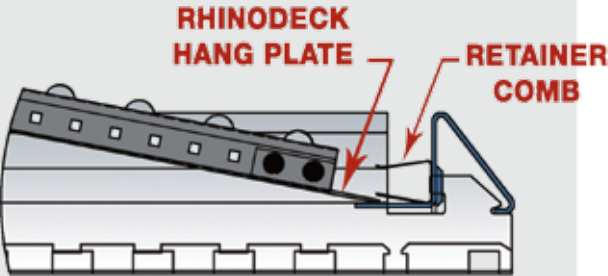
UPGRADE EXISTING SYSTEMS TO RHINODECK



Replace existing damaged or poorly functioning carton flow lanes with RhinoDeck

FLEXIBILITY & NO MAINTENANCE

- Low 1.1" profile
- Easily drops into existing carton flow systems
- Relocate tracks easily as SKU sizes change or your system grows

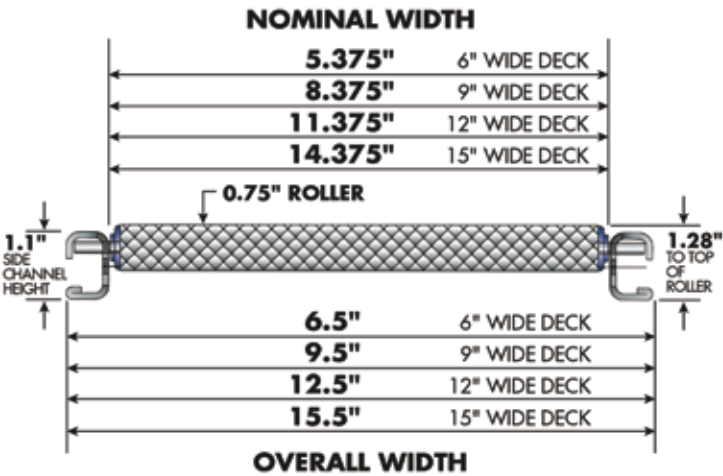


RhinoDeck installation for UPICK & KPICK carton flow



RhinoDeck drops into standard carton flow

RHINODECK Roller Dimensions



NOTE: RhinoDeck lane capacity is generally limited by track support spacing. Track capacities exceed current carton flow tracks.

Impact Decks



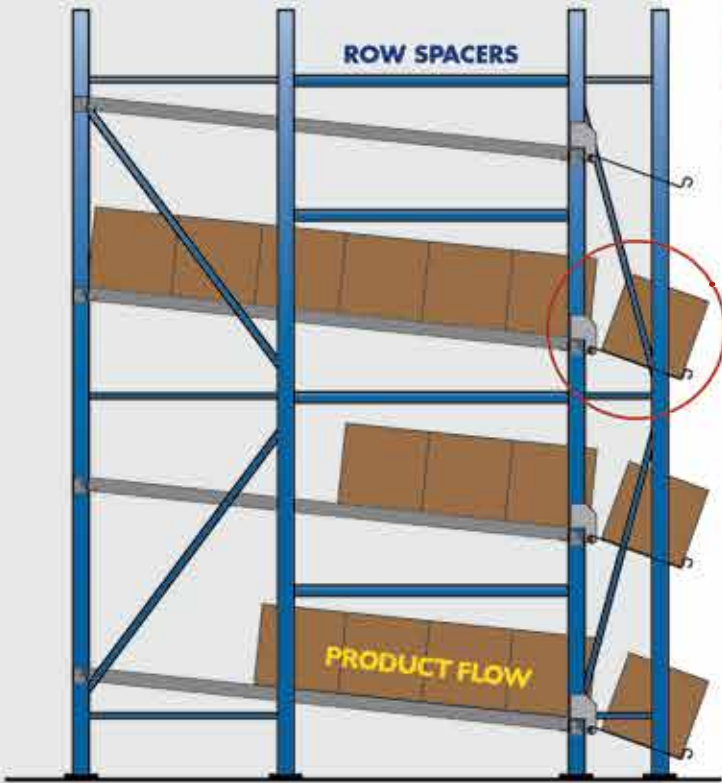
RhinoDeck impact deck helps protect your carton flow rollers at high-impact drop areas.

# CONCENTRIC Carton Flow

## FULL WIDTH ROLLER CARTON FLOW TRACK

### Tilt Trays

Angle your product at pick point - Available for Dura-Flo or RhinoTrac



### TILT TRAY BENEFITS

- **Product visibility**  
Helps order picking accuracy
- **Layback version**  
Every level is recessed from one below
- **Pick multiple levels with ease**  
Never have to reach under shelf
- **More ergonomic for employees**  
Less bending & reaching

### RhinoTrac Knuckle Shelves

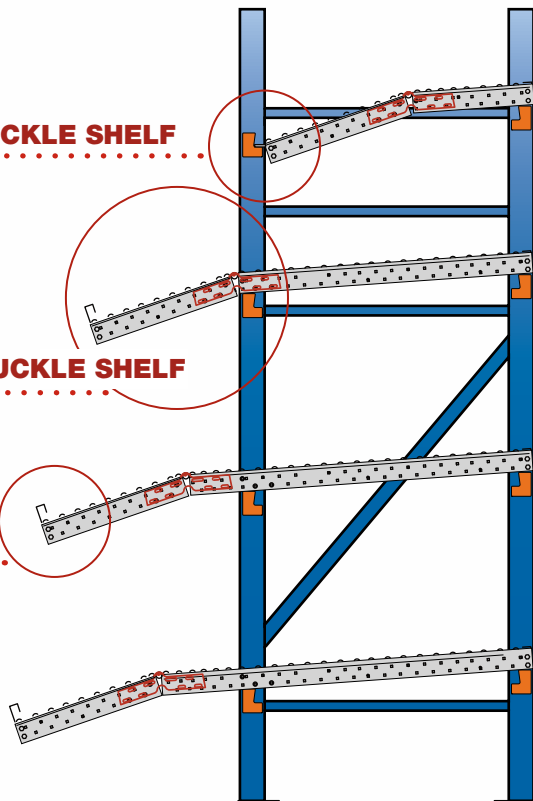
Angle rollers over beam to place product in proper picking position



#### INTERNAL KNUCKLE SHELF

#### EXTERNAL KNUCKLE SHELF

#### BOX STOP



### Cantilevered Shelf



RhinoTrac rear cantilevered shelf

### Full Length Indexer



### RhinoTrac Deep Lane Splice Plates



#### LONGER LENGTHS

- **Track to track splicing for extra deep lanes**
- **Splice plate attaches in field or factory**

## Carton Flow OPTIONS

### Pick Modules



Multi-level RhinoTrac application

### Total Box Support



Full-width box support helps provide flow for damaged boxes.

### Deep Flow Lane

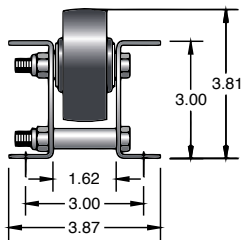


96" deep RhinoTrac lanes

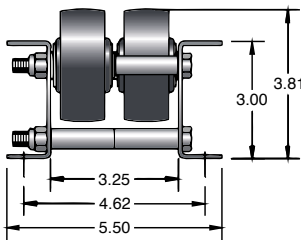


CSS Pallet Flow Wheel Options

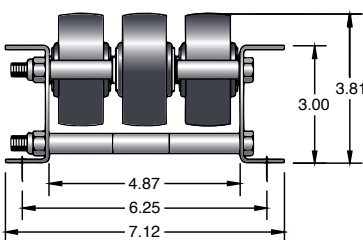
SINGLE PLASTIC WHEEL



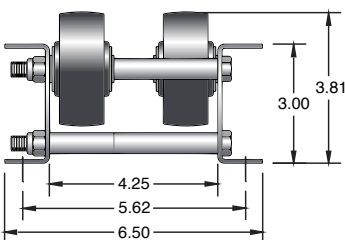
DOUBLE PLASTIC WHEEL



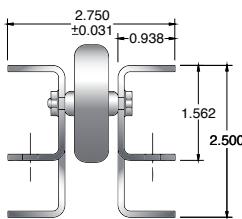
TRIPLE PLASTIC WHEEL



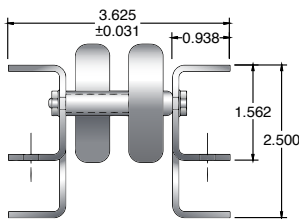
DOUBLE BRAKE WHEEL



SINGLE METAL SKATE WHEEL



DOUBLE METAL SKATE WHEEL



CSS PALLET FLOW

Optimize flow capabilities and provide efficient space utilization by eliminating unnecessary aisles

- Provides greater inventory control
- Automatic stock rotation
- Reduce labor and equipment costs
- Allow for future growth
- Increase storage space from 30% to 100%
- Limit product damage and spoilage
- Improve product turnaround time
- Increase overall productivity

Plastic Wheels



Plastic wheels are manufactured from specially engineered resins for high-impact, high-strength and have been rigorously tested for maximum performance in your specific warehouse environment. Available with sealed bearings for cooler conditions.

Metal Wheels



Zinc-plated metal wheels for lighter load picking applications are available with in-line or staggered configurations.

Pallet Flow Track Comparison

	Description	Application	Load Capacity	Characteristics
	<b>Plastic Wheel Track</b> <i>Moderate to heavy pallet flow</i>	For industrial production and distribution pallet storage environment.	500 to 5,000 lbs.	Wheel patterns can be designed inline or staggered on 2-, 3- or 4-inch centers, use the bearingless and bearing 2.87" diameter plastic wheel.
	<b>Brake Track</b> <i>Moderate to heavy pallet flow</i>	Used in moderate to heavy pallet flow applications for industrial production and distribution pallet storage environment.	1,000 to 5,000 lbs.	Patented cantilever-designed for superior pallet support, track allows for variety of pallets to flow, including GMA, Plastic, Euro, Slave and boxes. Wheel pattern can be designed inline or staggered on 2-, 3- or 4-inch center configurations. Can be used in double and triple configurations for heavier pallets.
	<b>Wide Steel Roller</b> <i>Light to heavy pallet flow</i>	Used in applications where pallets have inconsistent bottom surface, plastic pallets and where bottom runners are parallel to direction of flow.	Up to 5,000 lbs.	Split-rail systems and full-width systems available depending on requirements. 1.9" diameter galvanized steel rollers.



Solid metal pallet stops are integrated into every lane.

STRUCTURAL OR ROLL-FORMED PALLET RACK

Plastic wheel pallet flow rails rest on angle of structural beam or in the step of roll-formed beam for low-profile storage with maximum vertical space.



Metal skate wheel rails are notched to fit into the step of pallet rack beams.

Pallet Flow Specifications

Wheels	Application	Load Capacity	Dia.	Width	Characteristics
<b>Bearingless Plastic Wheel</b> <i>Light flow applications</i>	<ul style="list-style-type: none"><li>• pick modules</li><li>• wash-down environments</li><li>• heavy impact areas</li></ul>	580 lbs. per wheel	2.87"	1.375"	Material: Polycarbonate alloy resin; reinforced rib design; high-strength and significant impact resistance.
<b>Bearing Plastic Wheel</b> Standard or Sealed <i>Moderate to heavy flow</i>	<ul style="list-style-type: none"><li>• FIFO deep lane</li><li>• push back</li><li>• pick modules</li><li>• empty return lanes</li></ul>	320 lbs. per wheel	2.87"	1.375"	Material: Polycarbonate alloy resin; specially engineered resins, reinforced rib design, two bearings provide excellent rolling characteristics, sealed bearing where environment is a concern.
<b>Aluminum Wheel</b> Optional Impact Zone Wheel	<ul style="list-style-type: none"><li>• 1st and last pallet position in forklift load / unload zones</li><li>• heavy impact areas</li></ul>	320 lbs. per wheel	2.87"	1.125"	Material: Aluminum high-strength wheel; two bearings provide excellent rolling characteristics; high-strength and significant impact resistance.
<b>Metal Skate Wheel</b> Ligh-Duty Wheel for light loads in picking applications	<ul style="list-style-type: none"><li>• Picking applications (2-3 deep)</li><li>• Light loads with lower risk of pallet hang-ups</li><li>• Empty return lanes</li></ul>	100 lbs. per wheel	1.9"	0.5"	Material: Zinc plated steel. Light-Duty wheel with lower capacity. Ball bearings provide low friction rolling characteristics.

# PALLET FLOW

## WIDE-ROLLER



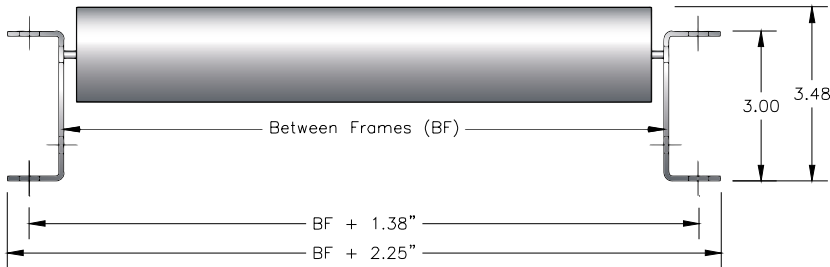
Full-width rollers provide total pallet support throughout flow lane (shown with pallet entry guides)

### Steel Rollers

Roller configurations available on 2", 3" or 4" centers and up to 52" wide to help support even the most inconsistent pallets.

Gravity steel roller systems function in most environments, even temperatures down to -40° F. Rollers are available in galvanized or oil finish and provide an excellent rolling surface for:

- Plastic pallets
- Skids
- Wire baskets
- Slip sheets
- Corrugated skids
- Plastic returnable shipping containers
- Odd size pallets
- Pallets with bottom runners parallel to direction of flow



Factory-installed brakes are used for speed control in deep lane wide-roller systems.

### Pallet Flow Specifications

Wheels	Application	Load Capacity	Dia.	Characteristics
Steel Roller	<ul style="list-style-type: none"><li>• FIFO</li><li>• LIFO systems</li><li>• plastic/multiple pallets or slip sheets</li></ul>	270 lbs. per roller	1.9"	Widths: 4.25 to 52 inches, full-width or split-rail roller systems in 12 to 16 gauge galvanized steel. Sealed bearings are optional.

### Brakes and Brake Tracks

Speed controllers are manufactured from high-strength, glass-reinforced engineered resins with molded-in metal reinforcements in all high-stress areas. Permanently lubricated with a special high/low temperature lubricant, ensures speed controllers require no further maintenance.

- Factory installed in ALL tracks
- Patented cantilever wheel support design
- Specially engineered resin wheels
- Additional load support in the braking zone



### Engineered Pallet Speed Control


Concentric Storage Systems provides application analysis, engineering, testing and expert installation.

Speed controllers specifically engineered for your pallet size and weight.



Deep lane systems maximize warehouse space by eliminating aisles and creating dense pallet storage. Concentric braking and speed control mechanisms keep your pallets flowing safely and minimize product damage.

### Pallet Flow Brake Specifications

	Wheels	Application	Characteristics
	<b>Speed Controller/Brake</b> <i>Light, moderate and heavy Flow</i>	Provides speed control in steel roller and plastic wheel pallet flow systems.	Centrifugal brake plate, rotated by a two-stage planetary gear mechanism. Outer hub features a polyurethane over mold that provides high friction contact with the pallet. Inner brake construction from engineered high-strength resins and galvanized metal to ensure maintenance free, maximum durability and long service life.

