



DTS®-C

Comb System

4707/5997-7705

Conveyor Design Manual

Table of Contents

Introduction / Safety	2-3
Components	4-5
Basic Design Considerations	6
Installation	7-10
· Comb mounting	
· Wearstrip Mounting	
Appendix / Drawings	11-15

Introduction

As products are becoming less stable, conveyor applications are becoming more demanding. Pasteurizers, coolers, warmers, and accumulation tables utilize either raised rib chains with transfer combs or perforated top chains with DTS® transfers. With raised rib chains, the benefit of the transfer combs is a smooth transfer. The primary benefit of a DTS® system is self clearing transfers for continuous product flow.

The DTS®-C System combines the best of both worlds with an ultra smooth transfer as well as continuous and self clearing product flow.

In addition the DTS®-C provides better stiffness at the transfer as well as improved fingertip support. The unique and patented feature of the DTS®-C System is the continuous flow of product to and from a raised rib chain. The finger transfer is combined with a DTS® chain so that products do not accumulate at pasteurizer, warmer, cooler or accumulation table infeed & discharge areas.

With improved stiffness compared to standard transfer plates, the infeed and discharge DTS® chains are fully supported so product tipping is avoided.

This manual shows the proper design and installation recommendations for the DTS®-C transfer system. Chain dimensions and basic conveyor design considerations are included. Following the suggestions outlined will ensure proper operation of the conveyor and will provide the longest possible chain life.

The DTS®-C system is designed for cans, glass bottles and PET bottles. For optimum performance of the DTS®-C transfer system, it is recommended to follow these guidelines carefully.

Safety Considerations

PRODUCT SAFETY: Products designed and manufactured by Rexnord are capable of being used in a safe manner; but Rexnord cannot warrant their safety under all circumstances. **PURCHASER MUST INSTALL AND USE THE PRODUCTS IN SAFE AND LAWFUL MANNER IN COMPLIANCE WITH APPLICABLE HEALTH AND SAFETY REGULATIONS AND LAWS AND GENERAL STANDARDS OF REASONABLE CARE; AND IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY REXNORD FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.**

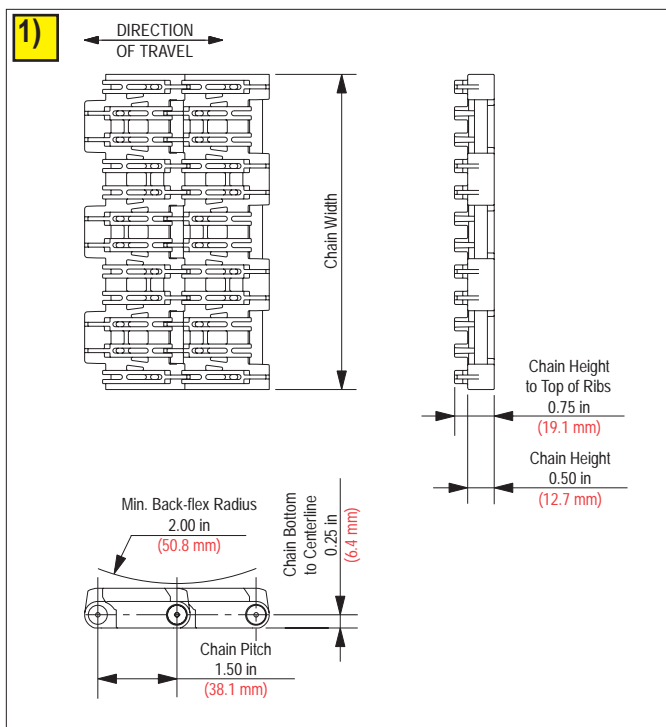
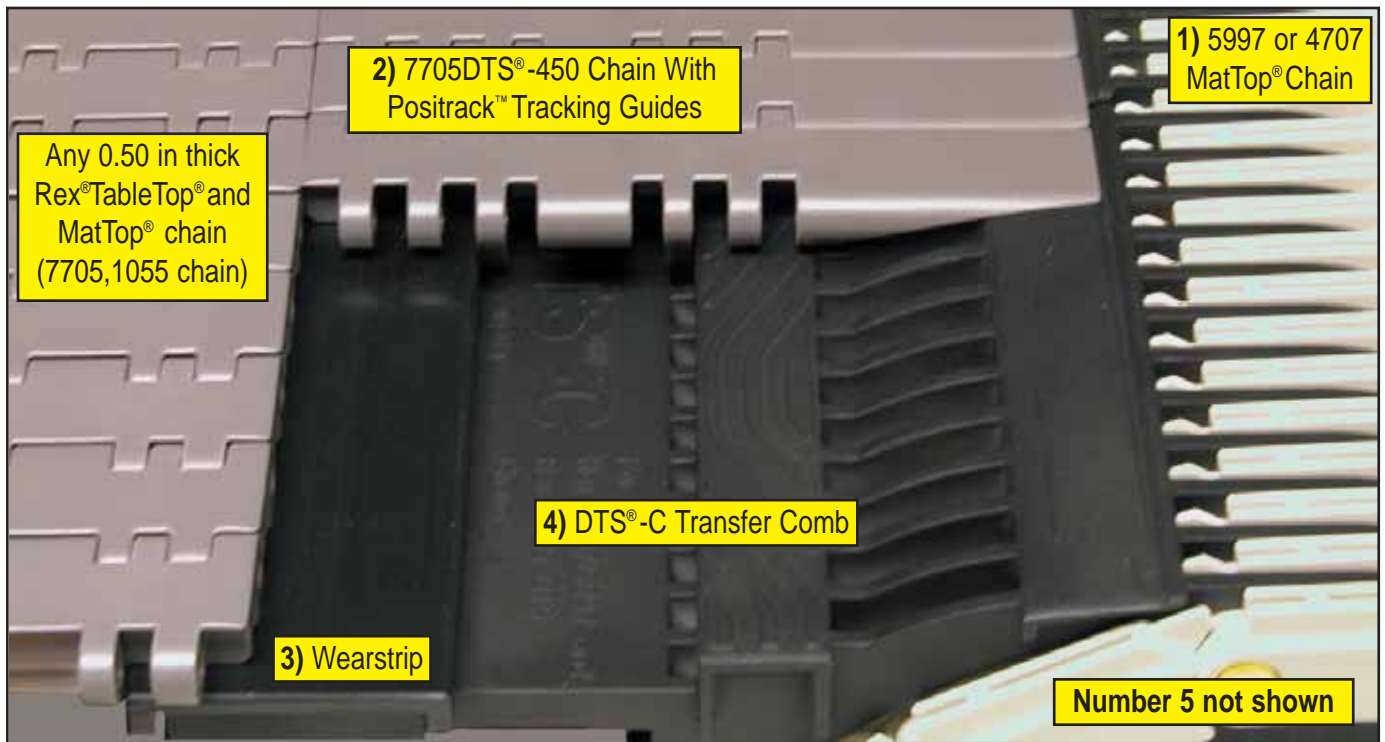
SAFETY DEVICES: Products are provided with only safety devices identified herein. **IT IS THE RESPONSIBILITY OF PURCHASER TO FURNISH APPROPRIATE GUARDS FOR MACHINERY PARTS** in compliance with MSHA or OSHA Standards, as well as any other safety devices desired by Purchaser and/or required by law; and **IF PURCHASER FAILS TO DO SO, PURCHASER SHALL INDEMNIFY REXNORD FROM ANY LOSS, COST OR EXPENSE RESULTING DIRECTLY OR INDIRECTLY FROM SUCH FAILURE.**



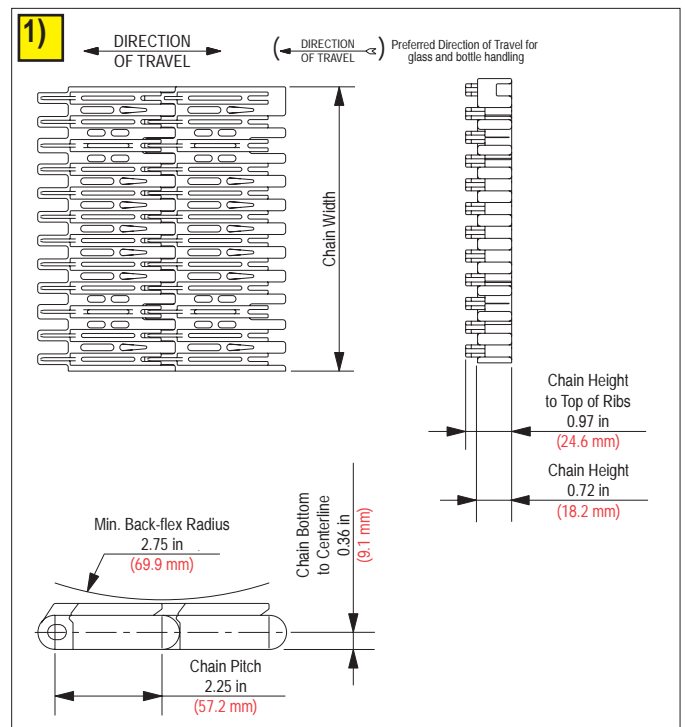
Rex® TableTop® and MatTop® Chains

Components

To utilize the DTS® -C 4707/5997-7705 product the following components are required:



Rex® 4707 MatTop® Chain Drawing

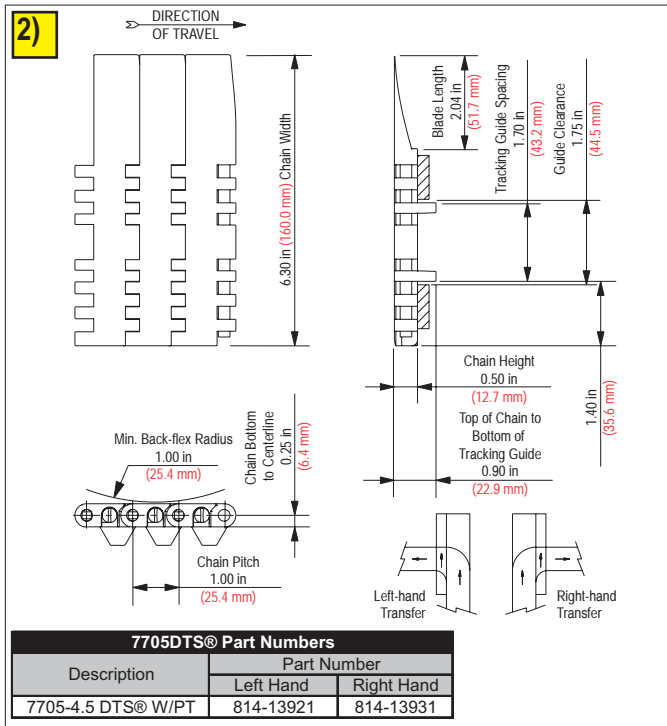


Rex® 5997 MatTop® Chain Drawing

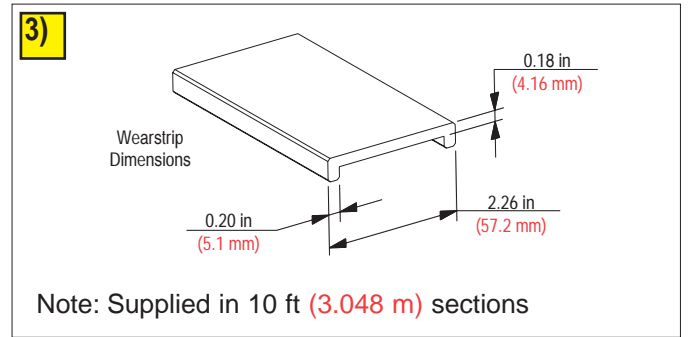
OR

Rex® TableTop® and MatTop® Chains

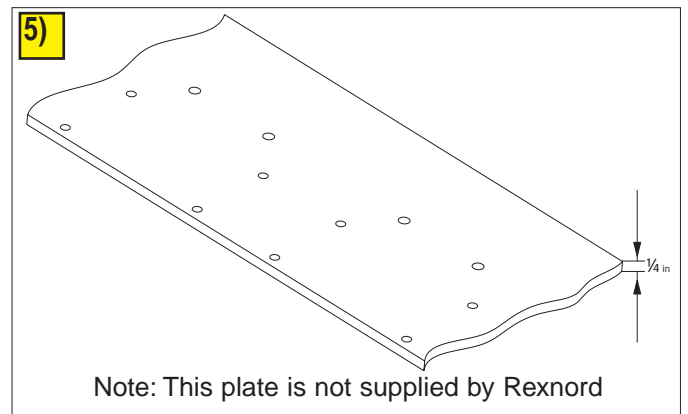
Components



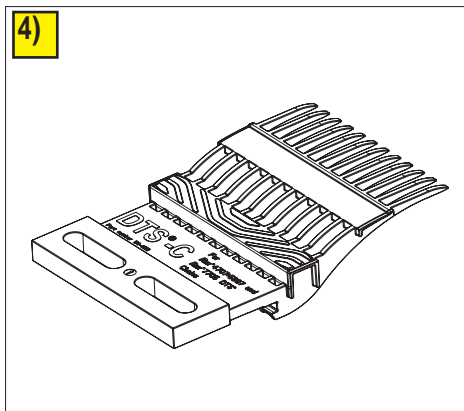
Rex® 7705DTS®-450 MatTop® Chain with Positrack™ Tracking Guides Drawing



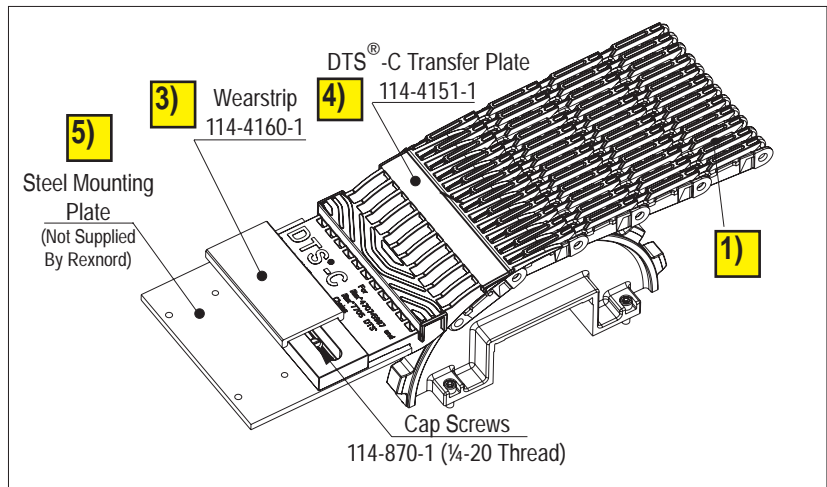
Wearstrip Drawing



Steel Mounting Plate



Comb Drawing



Rex® Transfer Comb Kit

DTS®-C Component Part Numbers							
Component Description	Kit Part Number	Comb Part Number	Screw Part Number	Wearstrip Part Number (10ft length)	For Use With:		
					Raised Rib Chain	DTS® Chain	Takeaway Chain
DTS®C Comb Kit	614-448-1	114-4151-1	114-870-1	NA	5997 or 4707	7705DTS-450	7705, 7706, or 1055
Wearstrip		NA		114-4160-1			

Wearstrip is sold in 10 ft (3.048 m) lengths and is sold separately

Basic Design Considerations

The DTS®-C should be installed according to assembly drawing as shown in Figure 1.

- Dimension “G” is a nominal dimension and may have to be adjusted for "fine tuning" for each specific application

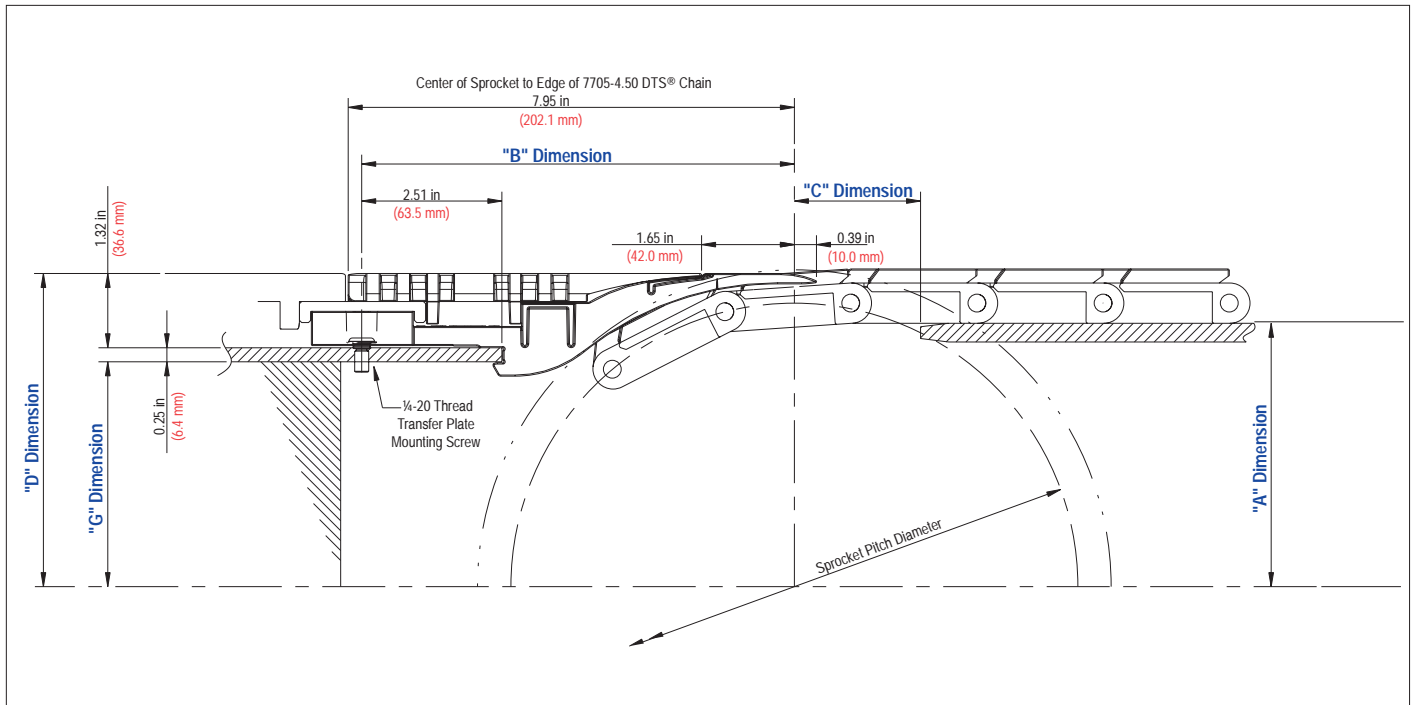


Figure 1. DTS®-C 4707/5997 - 7705DTS Shaft Drop Drawing

DTS® -C Shaft Drop Dimensions														
Chain Number	Sprocket				Dimensions									
	No of Teeth	Eff. No of Teeth	Ptch Diameter		"A" Dimension		"B" Dimension		"C" Dimension		"D" Dimension		"G" Dimension	
			inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
4707	21	10½	5.08	129.0	2.30	58.3	7.717	196.0	1.50	38.1	2.98	75.7	1.41	35.7
	23	11½	5.56	141.2	2.53	64.3					3.22	81.7	1.64	41.7
	25	12½	6.03	153.2	2.77	70.3					3.45	87.7	1.88	47.7
	27	13½	6.5	165.1	3.00	76.3					3.69	93.6	2.11	53.7
5997	9	9	6.57	166.9	2.93	74.4	7.717	196.0	2.25	57.2	3.84	97.5	2.26	57.5
	12	12	8.69	220.7	3.99	101.3					4.90	124.3	3.32	84.3
	14	14	10.11	256.8	4.69	119.1					5.60	142.3	4.03	102.3

Table 1. Shaft Drop Dimensional Values for DTS®-C 4707/5997-7705

Installation

Comb Mounting



- All DTS®-C modules should be mounted level
- The steel mounting plate should be level and straight
- The straightness and flatness of the plate will have a large effect on overall system performance
- The DTS®-C must be able to float axially to allow for thermal expansion and contraction of the chain (see Figure 3)
- The shouldered screws supplied with the kit must be used to mount the combs
- The DTS®-C combs should be positioned so that the teeth ride on the chain between the ribs. In other words, the bottom of the teeth should contact the bottom of the valley between the ribs of the 4707 or 5997 chain. Refer to Figures 4 and 5
- The DTS®-C combs are equipped with oblong holes, which are centered at 3 in (76.2 mm) pitch. These oblong holes are used to bolt the combs onto the supporting profile. The supporting profile must be drilled and tapped with ¼-20 holes at 3 in (76.2 mm) pitch. Using 3 in (76.2 mm) pitch enables the comb to accommodate thermal expansion over the full width of the machine

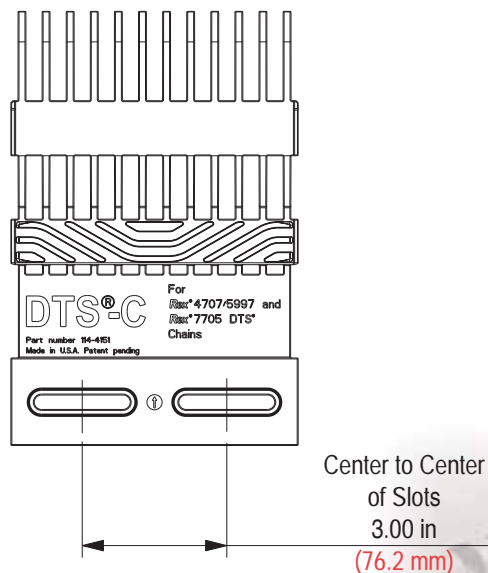


Figure 2. Mounting Slot Dimensions

Wearstrip Mounting



It is recommended that the wearstrip is secured (screwed, pinned, etc) near the tail shaft of the DTS® conveyor, this allows the wearstrip to expand and contract in length to avoid wearstrip buckling.

Installation - Comb Mounting - Thermal Expansion & Contraction

The transfer comb mounting recommendations shown in the Rex Engineering Manual (page EM-MT-50) also apply to the DTS®-C combs.

MatTop®
Conveyor
Design


- > Transfer Comb Installation
- > Low Temperature Application
- > High Temperature Application
- > Room Temperature Application
- > Combs

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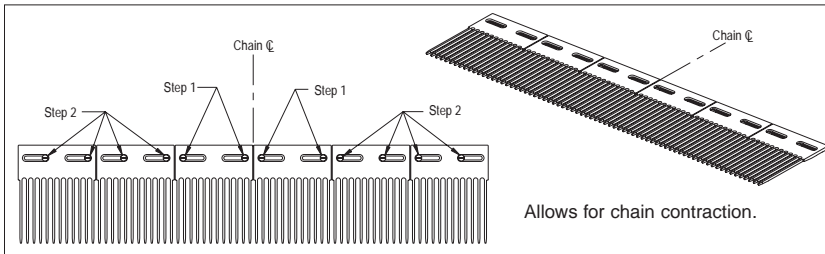
Rex® MatTop® Chains



CONVEYOR DESIGN RECOMMENDATIONS

Transfer Comb Installation

Low Temperature Application

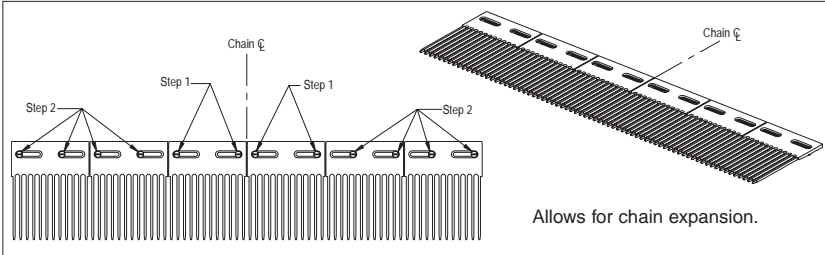


Allows for chain contraction.

STEP 1 Secure the two center most transfer plates in order to track the chain

STEP 2 Position the fasteners in the remaining transfer plates to the corresponding right side or left side of the slots to allow for contraction at low temperatures

High Temperature Application



Allows for chain expansion.

STEP 1 Secure the two center most transfer plates in order to track the chain

STEP 2 Position the fasteners in the remaining transfer plates to the corresponding right side or left side of the slots to allow for expansion at high temperatures

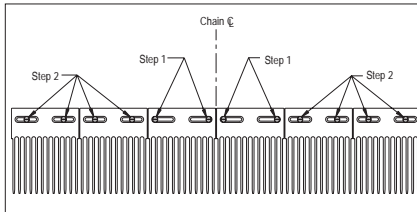
Room Temperature Applications

STEP 1 Secure the two center most transfer plates in order to track the chain

STEP 2 The transfer plates to the left and right should have fasteners centered in the mounting slots

Combs

⇒ A variety of styles and materials are available



Low Temperature Application

High Temperature Application

Room Temperature Applications

Combs

Low Temperature Application

High Temperature Application

Room Temperature Applications

Combs

Figure 3. Page EM - MT - 50 from Rex MatTop® Engineering Manual

Installation - Final Adjustments - Comb Adjustment for Optimum Performance

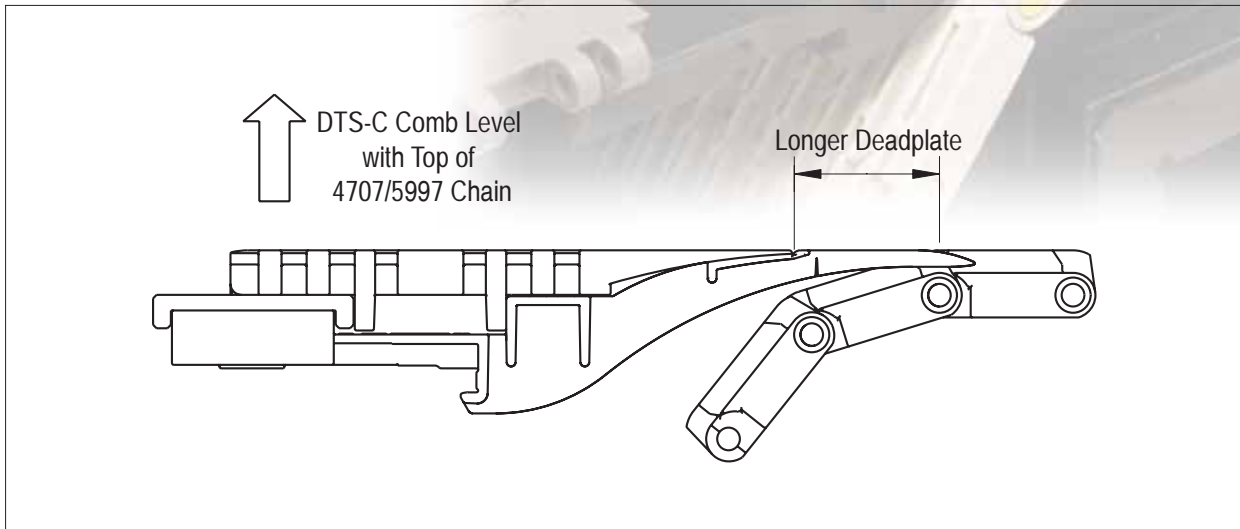


Figure 4. A higher position of the DTS®-C transfer comb increases the dead plate length, but will also provide a smooth product flow.

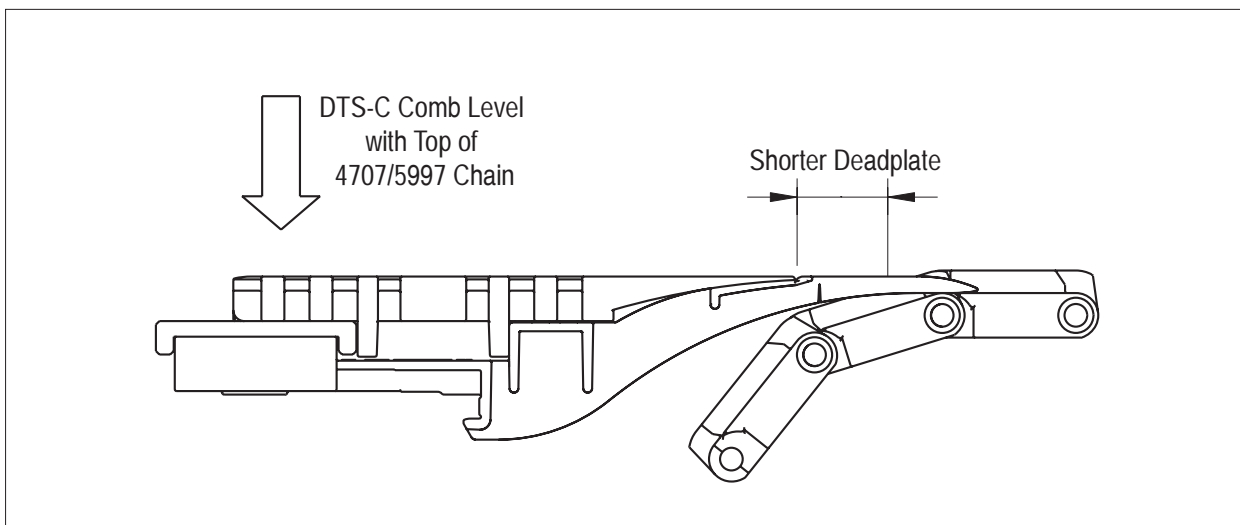


Figure 5. A lower position of the DTS®-C transfer comb decreases the dead plate length, but will also decrease the product flow stability due to the chordal action of the raised rib chain.



- As a general rule of thumb, products with a footprint of greater than 4.2 in (106 mm) will result in a self clearing DTS®-C system
- Optimum performance of the DTS®-C is achieved by fine-tuning when running the machine with the actual products

Installation - Discharge Area - Chain / Shaft / Gearbox Interference



The placement of the DTS®-C chain is critical. Be sure that the DTS® chain does not interfere with the gearbox that drives the raised rib chain.

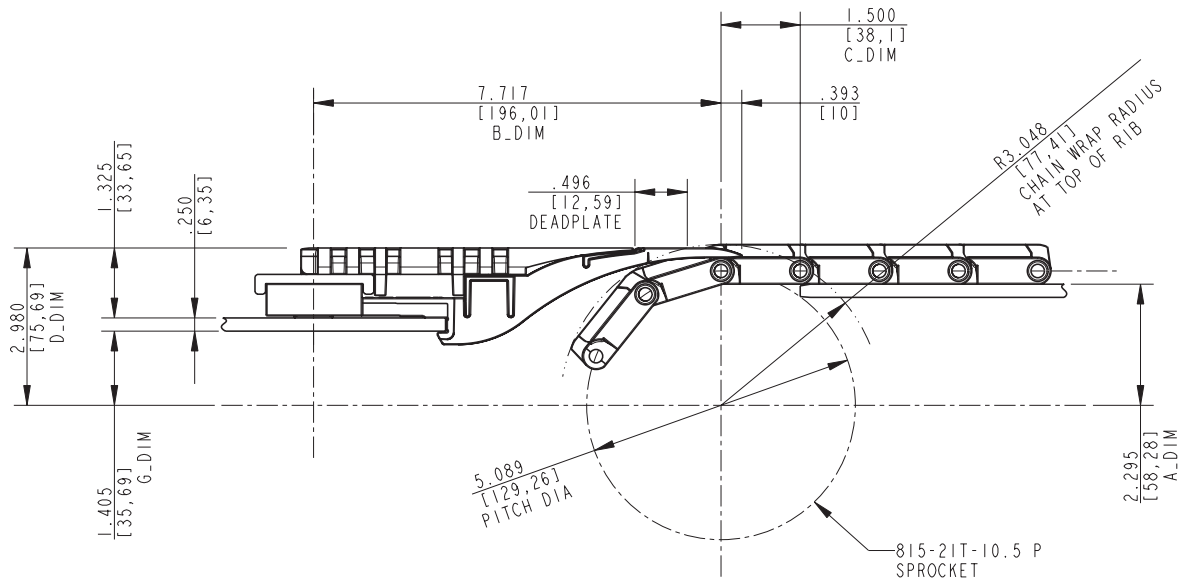
A few possibilities are as follows:

- 1) Guide the DTS® chain over the raised rib gearbox and place the DTS® gearbox after the raised rib gearbox. For this design a compact gearbox is required for the raised rib chain.
- 2) Guide the DTS® chain between the machine and the raised rib gearbox. For this design a maximum shaft of 3 in or **80 mm** must be utilized.
- 3) For 3-1/4 in or **90 mm** shafts “B dimension” must be increased to 7.914 in (**201.0 mm**). This will allow proper clearance between DTS® blade and shaft.

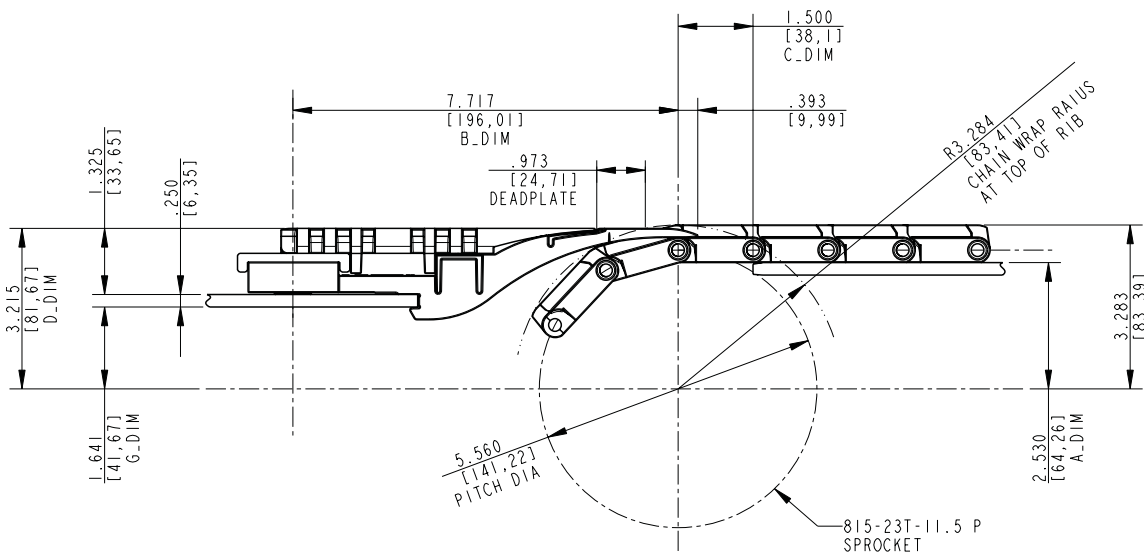


It is not recommended to use the DTS-C® system at the discharge end in high glass breakage areas.

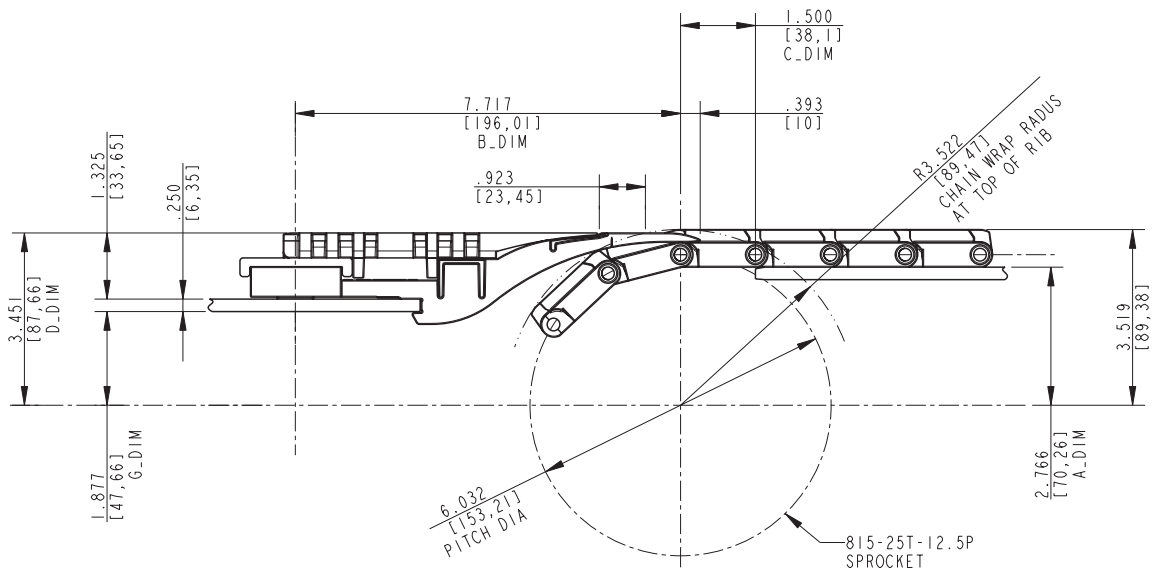
APPENDIX



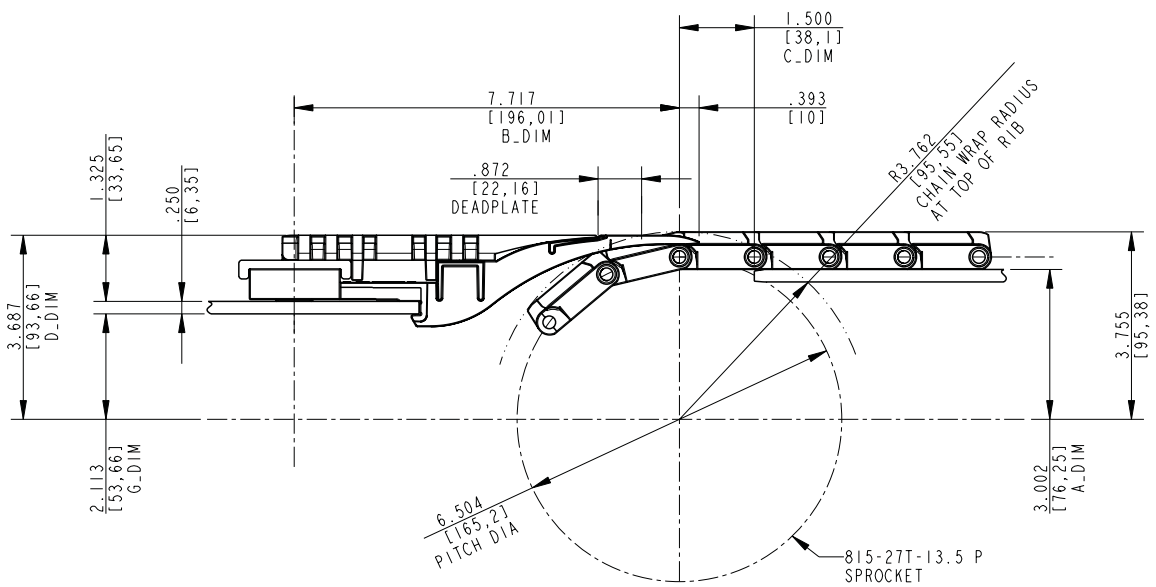
DTS®-C Shaft Drop Drawing for 4707 Chain Operating On 21 Tooth Sprockets



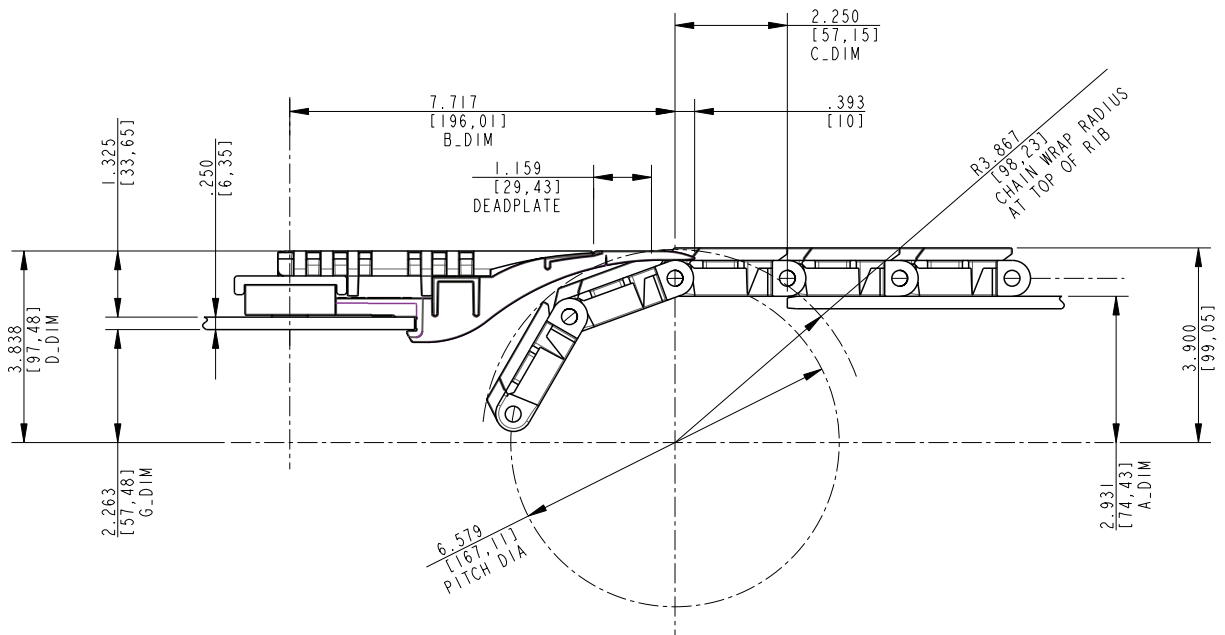
DTS®-C Shaft Drop Drawing for 4707 Chain Operating On 23 Tooth Sprockets



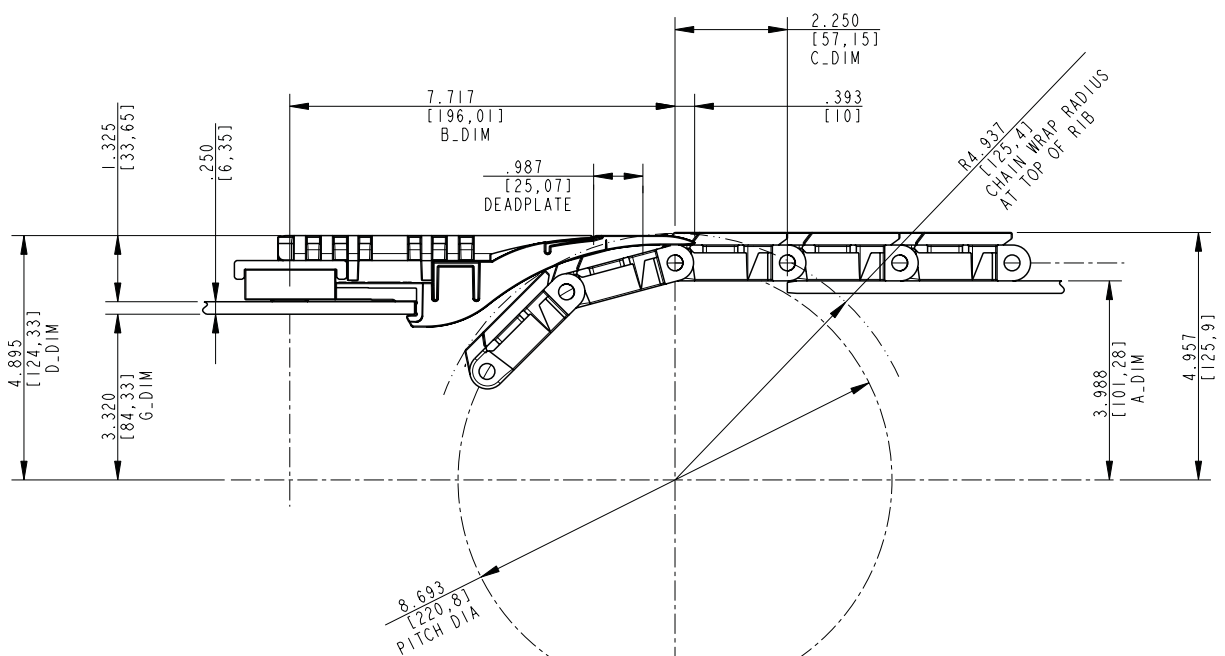
DTS®-C Shaft Drop Drawing for 4707 Chain Operating On 25 Tooth Sprockets



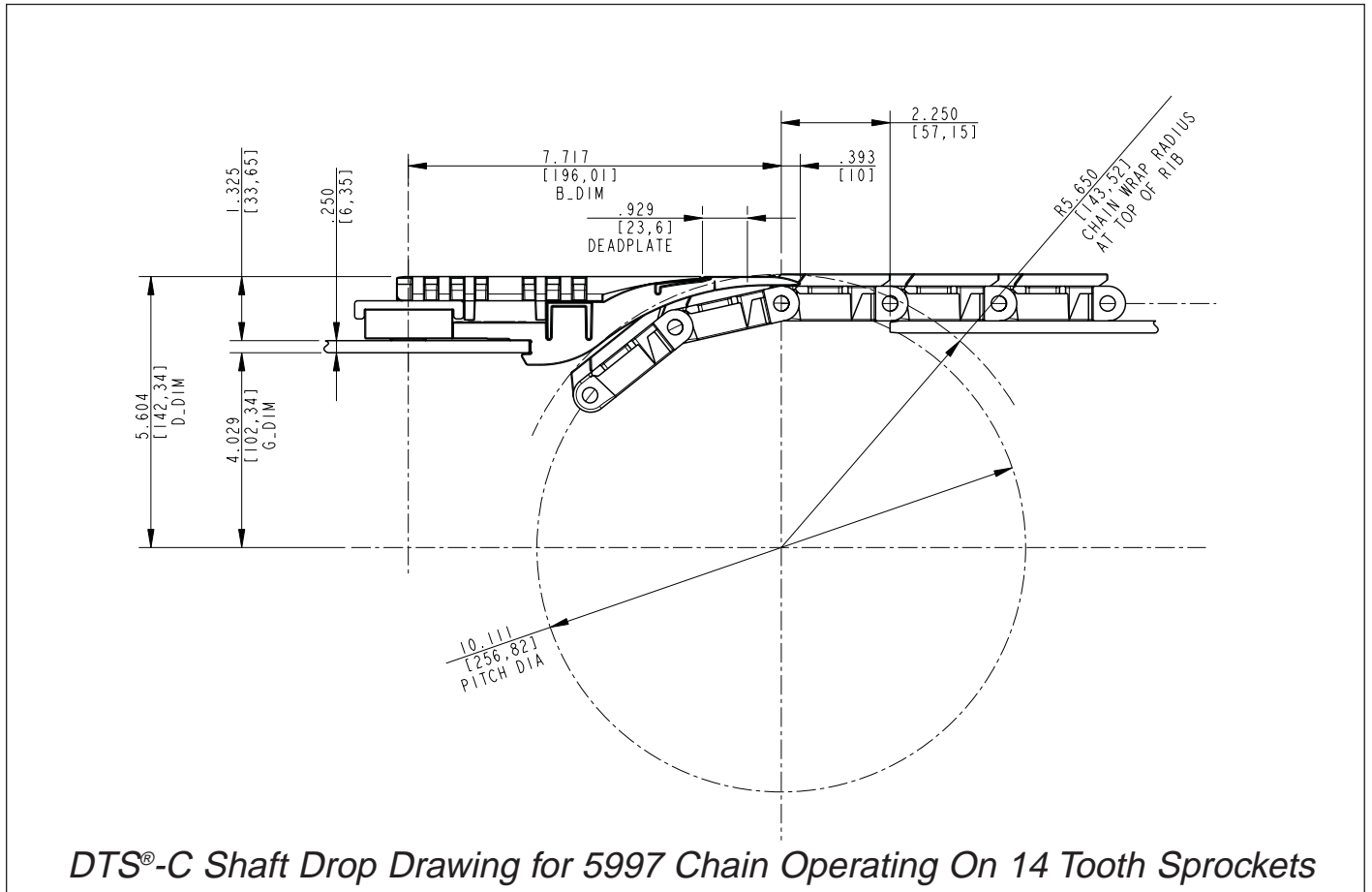
DTS®-C Shaft Drop Drawing for 4707 Chain Operating On 27 Tooth Sprockets



DTS®-C Shaft Drop Drawing for 5997 Chain Operating On 9 Tooth Sprockets



DTS®-C Shaft Drop Drawing for 5997 Chain Operating On 12 Tooth Sprockets





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