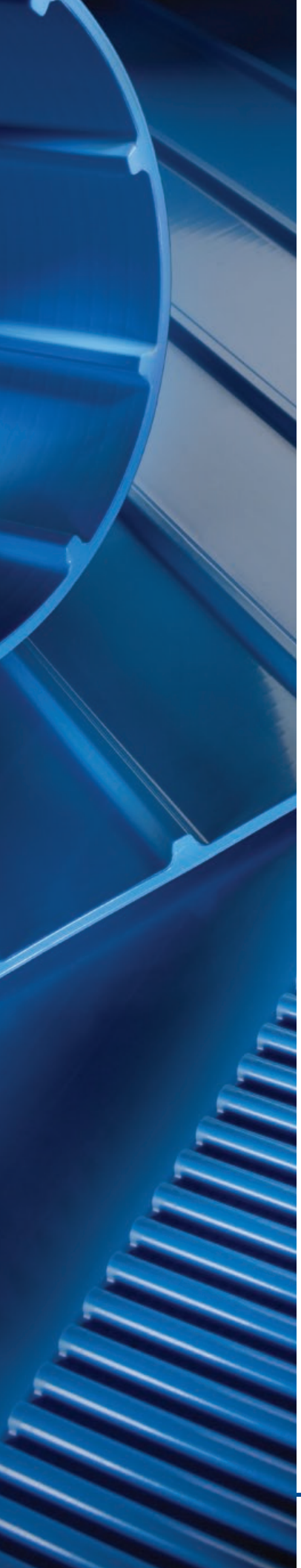
Food Conveyor Belting

Gates®

MECTROL®



Gates Mectrol

DESIGN LEADERSHIP AND SERVICE

Reflecting 25 years of synchronous timing belt experience, the Gates Mectrol food belt product line represents the "next generation" of food processing belting. Features such as embedded tension cords to eliminate stretch, a robust pin splice design for quick belt fastening and removal, a coextrusion process to reduce surface "sinks" and a "split tooth" weld for greater weld strength are all examples of Gates Mectrol's design leadership.

While the products are evolving quickly, one constant through all this is Gates Mectrol's position as *the* service leader. The short lead times and ability to expedite orders same day sets Gates Mectrol apart.

This catalog includes the specifications and design guidelines for the following Gates Mectrol products:

Positive Drive and Frictional Drive Conveying Belts

- PosiClean®
- CenterClean™
- FlatClean™

Reinforced Urethane Food Belting

Advantages

- Easy to clean
  - Reduces risk of microbial contamination
  - 43% less surface area to clean than plastic modular belting
  - Appropriate for Clean In Place (CIP) cleaning protocol
- These blue belts are “green”
  - Significant cleaning water savings, cleaning labor savings and wastewater reduction
    - 600 gallons in annual water savings of for every foot of 24” wide plastic modular belting replaced
  - Half the cleaning time of plastic modular belting
    - 30% lighter than plastic modular belting
      - Less energy used
      - Easier on motor bearings
- Belt construction
  - Kevlar® tension members stabilize belt properties under all lengths, loads and temperatures
    - Will not stretch, no retensioning needed
  - No belt surface “sinks” over the tooth that can collect water and promote bacteria growth
    - Smooth, even surface allows the belt to be scraped at the conveyor end
- Innovative belt joining technology
  - Robust, “split tooth” joining process eliminates service callbacks

Easily Cleaned In Place

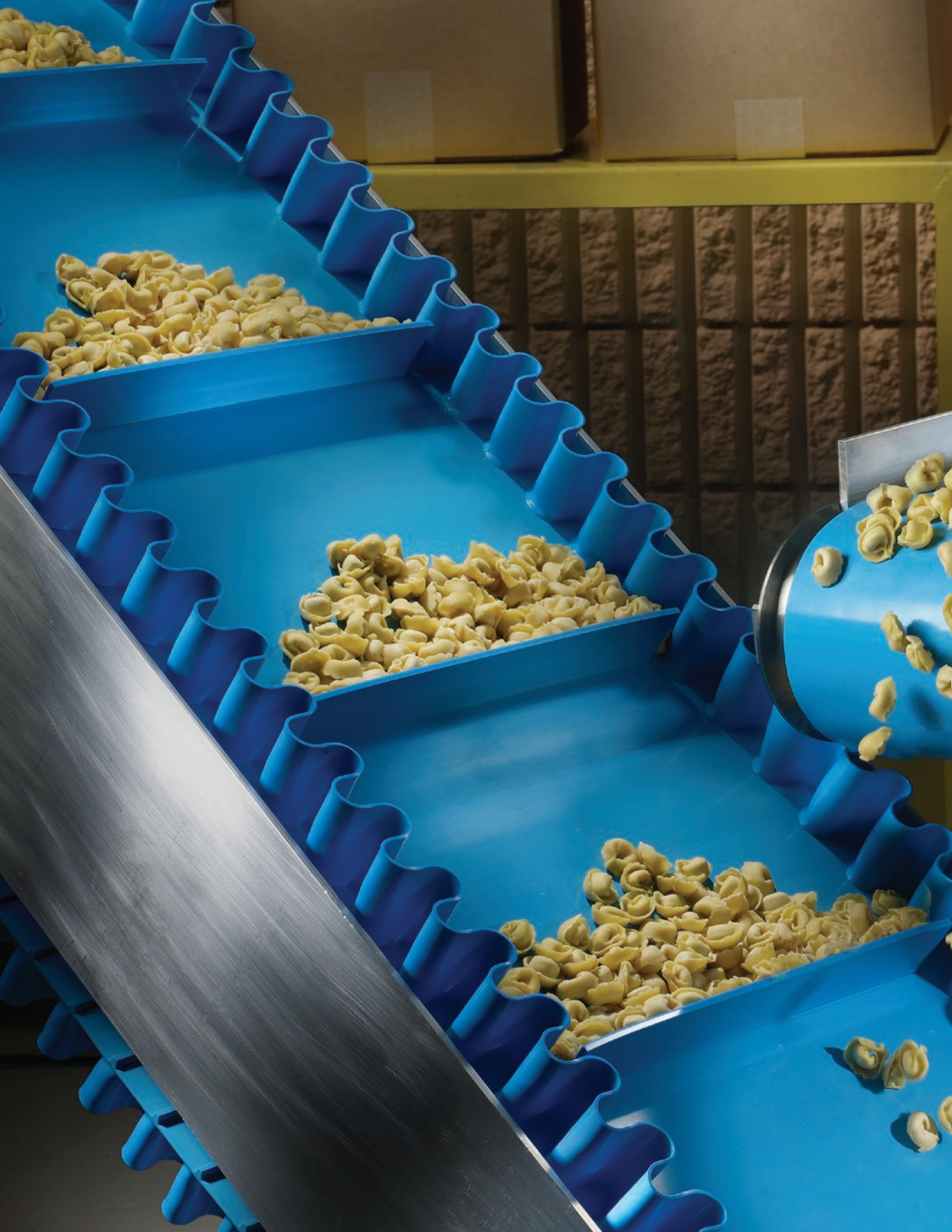
Gates Mectrol Food Belts

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

CONVEYOR DESIGN GUIDELINES (continued)

SUPPORT MATERIAL



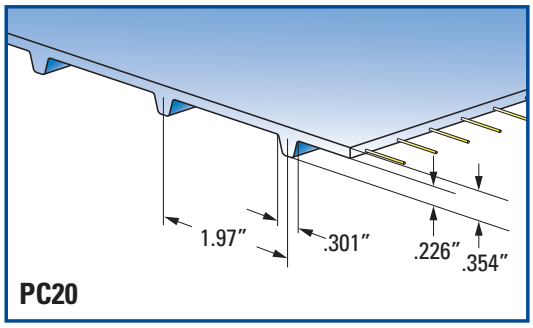
Product Index

Food Belt Product Line

GATES MECTROL FOOD CONVEYOR BELTING

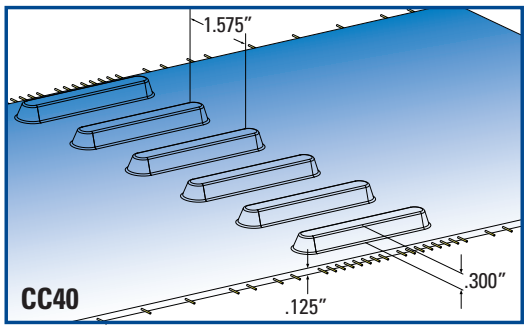
PosiClean® Food Conveyor Belting

- 1″ pitch (PC10) for improved transfer between conveyors
- 2″ pitch (PC20) for standard to high loads
- Special construction belts for cold temperature and heavier loads
- Direct replacement of most 1″ and 2″ plastic modular belt
- Full width drive tooth distributes torque over entire belt width making this belt appropriate for better engagement and high load applications
- Available with cleats and sidewalls
- Widths up to 36″



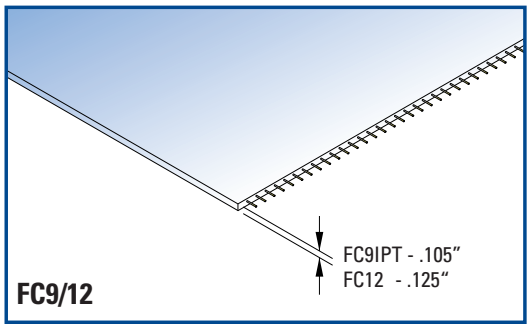
CenterClean™ Food Conveyor Belting

- Drive teeth only in the center three inches of the belt
- Pitch length of 1.575″ (40 mm)
- Appropriate for troughing applications
- Available with cleats and sidewalls
- Widths up to 48″



FlatClean™ Food Conveyor Belting

- Appropriate for troughing applications
- Available with V-guides, cleats and sidewalls
- Widths up to 48″

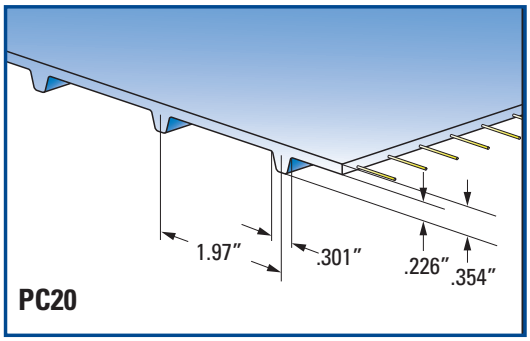


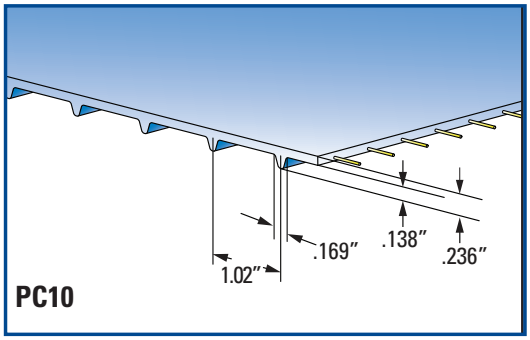
PosiClean® Belting

POSICLEAN® BELTING is an easy to clean, positive drive replacement for plastic modular belt in the food processing industry. PosiClean belting has sealed Kevlar® tension members to limit belt stretch and a tooth construction that extends across the full belt width for better torque distribution.

APPLICATION CHARACTERISTICS

- Replacement for plastic modular belt
  - Easier cleaning
  - No hinges or pins to break and possibly contaminate product
  - Quieter operation
  - 30% less weight
- Less labor and cleaning water than plastic modular belt
- Formulated for wash down environments
- Full width drive tooth distributes torque over entire belt width making this belt appropriate for high load applications





FEATURES

- Direct replacement of most 1" and 2" plastic modular belt
- Smooth surface allows cleaning to microbiological level and clean-in-place process
- Sealed edges and tension members prevent ingress of microbes
- Kevlar® tension members provide high strength, low stretch
  - Stabilize belt under all lengths, loads and temperatures
- Tough polyurethane construction
  - Water and chemical resistant
  - Meets FDA material requirements for wet food contact
- Welded endless or spliced with stainless steel or plastic lacing
- USDA accepted for meat, poultry and dairy processing equipment

PosiClean® Belting

POSICLEAN BELTING SPECIFICATIONS

Belt Options	PC10 Standard	PC20 Standard	PC20 Hi Torque	PC20 Cold Temp
Designator	KV-FDA	KV-FDA	HDK-FDA	HDK-R6
Cords/Inch	2	2	4	2
Pitch (nominal)	1.02" (26 mm)	1.97" (50 mm)	1.97" (50 mm)	1.97" (50 mm)
Hardness - Shore A	95	95	95	85
Specific Belt Weight (lbs/ft/in)	0.063	0.089	0.089	0.089
Specific Belt Stiffness (lbs/inch)	7400	7400	11800	7400
Min. Sprocket Dia. Service Temp Above 25°F	2.0" (50.8 mm)	3.76" (95.5 mm)	3.76" (95.5 mm)	3.76" (95.5 mm)
Min. Sprocket Dia. Service Temp Below 25°F	3.25" (82.6 mm)	6.27" (159.3 mm)	6.27" (159.3 mm)	6.27" (159.3 mm)
Min. Back Bend Dia. Above 25°F	3.5" (88.9 mm)	6" (152.4 mm)	6" (152.4 mm)	6" (152.4 mm)
Min. Back Bend Dia. Below 25°F	5" (127.0 mm)	10" (254.0 mm)	10" (254.0 mm)	10" (254.0 mm)
Service Temperature Range	+15° to 160° F (-9° to 71°C)	-4° to 158° F (-20° to 70°C)	-4° to 158° F (-20° to 70°C)	-10° to 158° F (-23° to 70°C)
Ultimate Belt Strength (lbs/in of width)	294	265	502	528
Coefficient of Friction (dynamic/static)				
Urethane vs. UHMW - Dry	0.33 / 0.42	0.33 / 0.42	0.33 / 0.42	0.54 / 0.69
Urethane vs. UHMW - Wet	0.35 / 0.58	0.35 / 0.58	0.35 / 0.58	-
Urethane vs. Stainless Steel - Dry	0.52 / 0.57	0.52 / 0.57	0.52 / 0.57	0.64 / 0.68
Urethane vs. Stainless Steel - Wet	0.40 / 0.57	0.40 / 0.57	0.40 / 0.57	-
Coefficient of Thermal Expansion (in/in/°F) (mm/mm/°C)	1.09 x 10-4 1.96 x 10-4	1.09 x 10-4 1.96 x 10-4	1.09 x 10-4 1.96 x 10-4	1.09 x 10-4 1.96 x 10-4
Color	PosiBlue, PosiWhite	PosiBlue, PosiWhite	PosiBlue	PosiBlue
Min. and Max. Width	4"/36" (102/914 mm)	5"/36" (127/914 mm)	5"/36" (127/914 mm)	5"/36" (127/914 mm)
Std. Length	200' (61 m)	200' (61 m)	200' (61 m)	200' (61 m)

PosiClean Series Part Number Nomenclature

PC20 3000 / 2400

- 2400 — Width: 24.00 "
- 3000 — Length: 300.0" (PC 10 must be in increments of 1.02", PC20 must be in increments of 1.97")
- PC20 — Pitch: PC10, PC20 ("HDK" for PC20 4 cord per inch, "R6" for Cold Temp.)

PosiClean® Belting

Max. Allowable Tension (lbs per inch width)[1] based on Splicing Option

Belt Options	PC10 Standard	PC20 Standard	PC20 Hi Torque	PC20 Cold Temp
Finger Length 30 mm x 70 mm	35	50	64	46
Split Tooth	31	40	52	37
PosiLace™	N/A	21	21	21
Flexco® UX1SS Clipper® Wire Hooks	31	31	41	37
Flexco® APF150 Alligator® Plastic Rivet	N/A	25	25	23
Flexco® APF100 Alligator® Plastic Rivet	25	N/A	N/A	N/A
Flexco® RS125 Alligator® Ready Set™ Staple	N/A	26	26	23
Flexco® RS62 Alligator® Ready Set™ Staple	26	N/A	N/A	N/A

[1] Max allowable set as the lower of 25% yield strength or 2% stretch of weld or splice

PosiClean Slit Width Tolerances

Up To and Including 15.75"	15.76" to 23.62"	> 23.63" or more
+0.00 to -.125"	+0.00 to -.1875"	+0.00 to -.25"

PosiClean Belting Master Rollstock Width Tolerances

18"	36"
+/- 1/16"	+1/8" / -3/8"

PosiClean Belt Length Tolerances

PC10	
Cut	+1.0" / -.0"
Rollstock	+/- 1%
PC20	
Cut	+2.0" / -.0"
Rollstock	+/- 1%

PosiClean® Sprockets

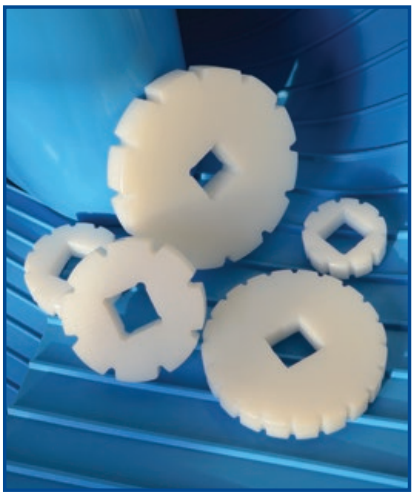
PosiClean Sprocket Specifications

			PC10					PC20				
Tooth Count			**6**	**8**	**10**	**12**	**20**	**6**	**8**	**10**	**12**	**16**
Outside Diameter		inch	1.9	2.5	3.2	3.8	6.4	3.7	4.9	6.2	7.5	10.0
(Nominal*)		mm	48	64	81	97	163	94	126	158	189	253
Width		inch	1	1	1	1	1	1.3	1.3	1.3	1.3	1.3
(Nominal)		mm	25.4	25.4	25.4	25.4	25.4	32.0	32.0	32.0	32.0	32.0
Bore Size	Imperial	square, in	N/A	N/A	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		round, in	1	1	N/A	N/A	N/A	1	1	1	1	1
	Metric	square, mm	N/A	N/A	40	40	40	40	40	40	40	40
		round, mm	30	30	N/A	N/A	N/A	30	30	30	30	30
In Stock (Square Bore Only)	(F = Flange, NF = No Flange)				NF	NF	NF	F, NF	F, NF	F, NF	F, NF	F, NF
Weight		(lbs)	.06	.12	.17	.30	.99	.32	.68	1.1	1.7	3.1

* Imperial keyway sizes on round bores conform to ANSI standard B17.1 - 1967 (R1989); metric keyway sizes conform to BS 4235: Part 1: 1972 (1986)

For pulleys with flanges, add .196" to outside diameter to get flange diameter.

Notes:
- Material UHMW-PE
- Sprockets must be locked into position on the shaft.
- PC10 belting can run on some competitor's plastic modular belting with 8, 10, 12 and 20 tooth sprockets.
- PC20 belting can run on some competitor's plastic modular belting with 8, 10 and 12 tooth sprockets.



PosiClean Sprocket & Support Guidelines (PC10 and PC20)

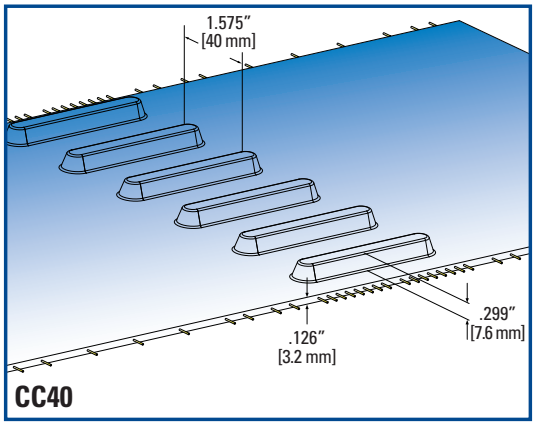
Belt Width	**6" (152 mm)**	**9" (221 mm)**	**12" (305 mm)**	**15" (381 mm)**	**18" (451 mm)**	**21" (533 mm)**	**24" (610 mm)**	**27" (686 mm)**	**30" (672 mm)**	**36" (914 mm)**
Min. No. Sprockets *Max. 5" (127 mm) spacing center to center*	3	3	4	4	5	6	6	7	7	9
No. of Sprockets for max. *allow. tension Max. 3" (76 mm) spacing center to center*	3	4	5	6	7	8	9	10	11	13
Min. No. Carryway Supports *6" (152 mm) spacing center to center*	2	3	3	4	4	5	5	6	6	7

CenterClean™ Belting

CENTERCLEAN 40 belting has drive teeth only in the center three inches of the belt and a pitch length of 1.575" (40 mm). The center position of teeth makes this belt appropriate for self-tracking and troughing applications as well as lighter load general processing.

APPLICATION CHARACTERISTICS

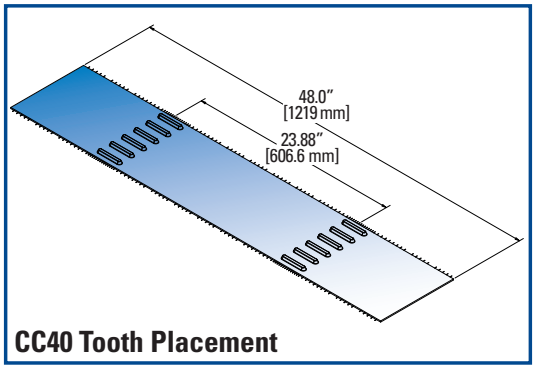
- Formulated for wash down environments
- Troughing conveyor
- Self-centering design



CC40

FEATURES

- Smooth surface allows cleaning to microbiological level
  and clean-in-place process
- Sealed edges and tension members prevent ingress of microbes
- Kevlar® tension members provide high strength, low stretch
  - Stabilize belt under all lengths, loads and temperatures
- Tough polyurethane construction
  - Water and chemical resistant
  - Meets FDA material requirements for wet food contact
- Welded endless or spliced with stainless steel or plastic lacing
- USDA accepted for meat, poultry and dairy processing equipment



CC40 Tooth Placement

CenterClean belts are constructed with flexible urethane and sealed Kevlar® tension members. This construction allows CenterClean belts to be troughed or run on small diameter pulleys with minimal belt stretch.

CenterClean™ Belting

CENTERCLEAN™ BELTING SPECIFICATIONS

Belt Options	CC40
Average Cords/inch	2
Pitch (nominal)	1.575" (40 mm)
Hardness - Shore A	98
Specific Belt Weight (lbs/ft/in)	0.078
Specific Belt Stiffness (lbs/inch)	7400
Min. Sprocket Dia. service temperature above 25°F	4.9" (124 mm)
Min. Sprocket Dia. service temperature below 25°F	5.9" (150 mm)
Min. Back Bend Dia. above 25°F	6" (152 mm)
Min. Back Bend Dia. below 25°F	10" (254 mm)
Service Temperature Range	15° to 160° F (-9° to 71° C)
Coefficient of Friction (dynamic/static)	
Urethane vs. UHMW - Dry	0.33 / 0.42
Urethane vs. UHMW - Wet	0.35 / 0.58
Urethane vs. Stainless Steel - Dry	0.52 / 0.57
Urethane vs. Stainless Steel - Wet	0.40 / 0.57
Coefficient of Thermal Expansion (in/in/°F) (mm/mm/°C)	1.09×10^{-4} 1.96×10^{-4}
Color	PosiBlue, PosiWhite
Min. and Max. Width	6"/ 48" (152 / 1219 mm)
Std. Length	200' (61 m)

CenterClean Maximum Allowable Belt Tension (lbs) based on Splice Option and Belt Width

		Width Ranges						
		Single Track				Dual Track		
		6"- 9"	>9"- 12"	>12"- 18"	>18"- 30"	>30" - 39"	>39" - 42"	>42" - 60"
Splice Type	Finger Weld or Butt Splice	239	275	317	344	724	766	793
	APF150 Mechanical	139	160	184	199	419	443	458
	RS125 Mechanical	290	334	385	417	878	929	961

CenterClean™ Belting

CenterClean Series Part Number Nomenclature

CC40 2998 / 2400

- 2400 — Width: 24.00”
- 2998 — Length: 299.8” (Must be in increments of 1.575”)
- CC40 — Pitch:

CenterClean Slit Width and Tooth Center Tolerances

Up To and Including 15.75”	15.76” or more
+/- 1/16”	+/- 1/8”

CenterClean Belting Master Rollstock Width Tolerances

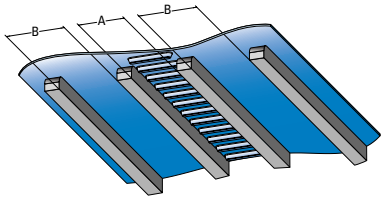
18”	48”
+/- 1/16”	+1/8” / -3/8”

CenterClean Belt Length Tolerances

Cut	+1.5” / -.0”
Rollstock	+/- 1%

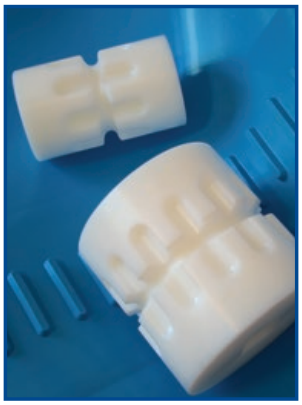
CenterClean Carryway Support Guidelines

Distance Between Parallel Wear Strips Guiding Belt Teeth, Dim. A	3.15”
Distance Between Parallel Wear Strips Not Guiding Belt Teeth, Dim. B	4” - 6”



CenterClean Sprocket Specifications

		CC40							
Number of Teeth		10	11	12	13	15	16	17	20
Nom. Outside Diameter	inch	4.9	5.4	5.9	6.4	7.4	7.9	8.4	9.9
	mm	124	137	150	163	188	201	213	251
Nominal Width	inch	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
	mm	165	165	165	165	165	165	165	165
Imperial Square Bore - Dimension	inch	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Material	UHMW-PE								



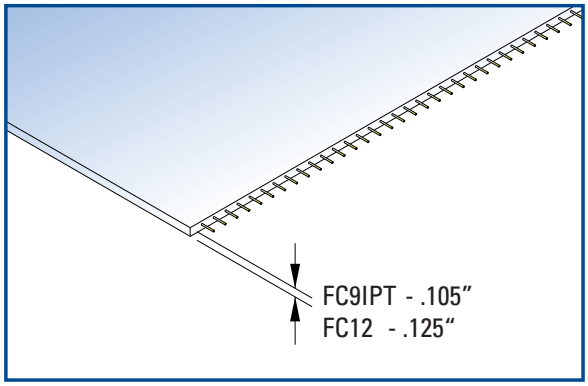
Notes: CC40 belts run on most 40 mm pitch sprockets.
Sprockets must be locked into position on the shaft.

FlatClean™ Belting

FLATCLEAN is a USDA approved, all-purpose polyurethane flat belt reinforced with Kevlar® tensile members. The combination of a non-fraying polyurethane jacket material with sealed tensile members minimizes belt stretch, reduces retensioning and extends belt life.

APPLICATION CHARACTERISTICS

- Standard to high loads, particularly well suited for cleated belts
- Troughing
- Wash down environments



FEATURES

- Sealed edges and tension members prevent ingress of microbes
- Kevlar® tension members provide high strength, low stretch and are cut and abrasion resistant
  - Eliminate need to retension conveyor
  - Stabilize belt under all lengths, loads and temperatures
- Smooth surface and non-fraying edges allow cleaning to a microbiological level
- Welded endless or spliced with stainless steel lacing
- Tough polyurethane construction
  - Water and chemical resistant
  - Meets FDA material requirements for wet food contact
- FC9 has a 1" minimum pulley diameter
- USDA accepted for meat, poultry and dairy processing equipment

FlatClean™ Belting

FLATCLEAN™ BELTING SPECIFICATIONS

Belt Options			FC9			FC12	
Designator			**FC9IPR**	**FC9IPT**		**FC12**	**FC12IP**
Surface Finish		Top	Smooth	Inverted Pyramid		Smooth	Inverted Pyramid
		Running Side	Inverted Pyramid	Smooth		Smooth	Smooth
Thickness			0.120" (3.0 mm)	0.105" (2.7 mm)		0.125" (3.0 mm)	0.125" (3.0 mm)
Hardness, Shore A		Top (Medium Blue)	90	90		95	95
		Running Side (PosiBlue)	95	95		95	95
Cords/inch			2	2		2	2
Ultimate Belt Strength (lbs/inch width)			169	169		265	265
Specific Belt Weight (lbs/ft/in)			0.048	0.048		0.065	0.065
Specific Belt Stiffness (lbs/inch)			3675	3675		7400	7400
Min. Pulley Dia. Service Temperature Above 25°F			1.0" (26 mm)	1.0" (26 mm)		2.0" (51 mm)	2.0" (51 mm)
Min. Pulley Dia. Service Temperature Below 25°F			2.0" (51 mm)	2.0" (51 mm)		3.0" (76 mm)	3.0" (76 mm)
Min. Back Bend Dia. Above 25°F			2.0" (51 mm)	2.0" (51 mm)		2.0" (51 mm)	2.0" (51 mm)
Min. Back Bend Dia. Below 25°F			3.0" (76 mm)	3.0" (76 mm)		3.0" (76 mm)	3.0" (76 mm)
Service Temperature Range			+15° to 160° F (-9° to 71°C)	+15° to 160° F (-9° to 71°C)		+15° to 160° F (-9° to 71°C)	+15° to 160° F (-9° to 71°C)
Coefficient of Friction (Dynamic/Static)							
TPU vs. UHMW	Dry	Top	0.49/0.61	0.31/0.37	Smooth	0.33/0.42	0.33/0.42
	Wet	Top	0.50/0.65	0.30/0.38	Smooth	0.35/0.58	0.35/0.58
TPU vs. Steel	Dry	Top	0.89/1.21	0.32/0.40	Smooth	0.52/0.57	0.52/0.57
	Wet	Top	0.75/1.20	0.35/0.39	Smooth	0.40/0.57	0.40/0.57
TPU vs. UHMW	Dry	Running Side	0.19/0.25	0.33/0.42	Inverted Pyramid	N/A	0.11/0.21
	Wet	Running Side	0.24/0.27	0.35/0.58	Inverted Pyramid	N/A	0.14/0.23
TPU vs. Steel	Dry	Running Side	0.40/0.35	0.52/0.57	Inverted Pyramid	N/A	0.22/0.27
	Wet	Running Side	0.42/0.36	0.40/0.57	Inverted Pyramid	N/A	0.23/0.28
Coefficient of Thermal Expansion		in/in/°F	1.09×10^{-4}	1.09×10^{-4}		1.09×10^{-4}	1.09×10^{-4}
		[mm/mm/°C]	1.96×10^{-4}	1.96×10^{-4}		1.96×10^{-4}	1.96×10^{-4}
Color		Top	Medium Blue	Medium Blue		PosiBlue, PosiWhite	PosiBlue, PosiWhite
		Running Side	PosiBlue	PosiBlue			
Min. and Max. Width			4" / 48" (102 / 1219 mm)	4" / 48" (102 / 1219 mm)		4" / 48" (102 / 1219 mm)	4" / 48" (102 / 1219 mm)
Std. Length			200' (61 m)	200' (61 m)		200' (61 m)	200' (61 m)

FlatClean Series Part Number Nomenclature

FC12IP 3000 / 2400

- Width: 24.00 "
- Length: 300.0"
- Designator: FC9 ("IPT" for Inverted Pyramid for Top Side, "IPR" for Running Side)
  FC12 ("IP" for Inverted Pyramid One Side, IPB for both sides)

FlatClean™ Belting

FlatClean Belting Max. Allowable Tension (lbs per inch width)[1]

Belt Options	FC9IPR	FC9IPT	FC12	FC12IP
Platen Press Weld (20 mm x 70 mm Finger Length)	30	30	48	48
Flexco® UX1SS Clipper® Wire Hooks	33	33	59	59
Flexco® APF100 Alligator® Plastic Rivet	27	27	N/A	N/A
Flexco® APF150 Alligator® Plastic Rivet	N/A	N/A	34	34
Flexco® RS62 Alligator® Ready Set™ Staple	31	31	N/A	N/A
Flexco® RS125 Alligator® Ready Set™ Staple	N/A	N/A	51	51

[1] Max allowable set as the lower of 25% yield strength or 2% stretch of weld or splice

FlatClean Slit Width Tolerances

Up To and Including 15.75"	15.76" or more
+/- 1/16"	+/- 1/8"

FlatClean Belting Master Rollstock Width Tolerances

48"
+0 / -1/4"

FlatClean Belt Length Tolerances

Cut	+1.0" / -.0"
Rollstock	+/- 1%

Fabrication and Splicing

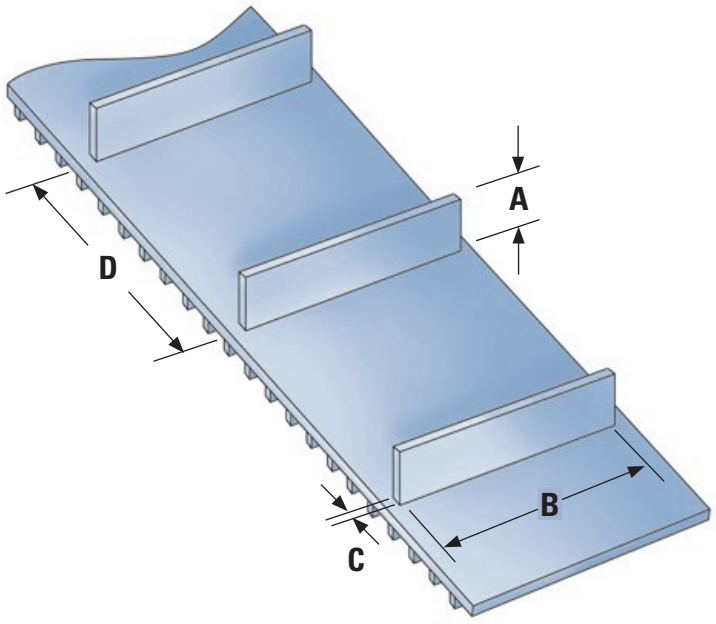
CLEATS

Cleats, also called “profiles” or “flights”, can be added to any Gates Mectrol Food Grade Belt to move product up an incline.

Cleat Specifications

Cleat Dimensions		
Height “A”	0.25” (6 mm)	Height Tolerance ±0.063” (1.5 mm)
	1” (25 mm)	
	1.5” (38 mm)	
	2” (51 mm)	
	3” (76 mm)	
	4” (102 mm)	
Length (Width Across Belt) “B”	6” (152 mm) min. Up to 36” (0.9 m) max.	Length Tolerance ±0.063” (1.5 mm)
Thickness “C”	0.197” (5 mm) Std.; 7 mm available	Thickness Tolerance ±0.020” (0.5 mm)
Durometer	95 Shore A	
Color	PosiBlue	
Welding Tolerances		
Minimum Belt Length	80” (2.0m)	
Minimum Cleat Spacing “D”	3.94” (100 mm)	
Cleat Spacing	Spacing Must Be Multiple of Belt Pitch Length	
Cleat Location	PC20 ±0.063” (1.5 mm)	Over Tooth or Halfway Between Teeth
	CC40 ±0.125” (3.1 mm)	Halfway Between Teeth
	PC10 ±0.063” (1.5 mm)	Over Tooth
	FC9/12 ±0.125” (3.1 mm)	
Cleat Centering Tolerance	±0.063”	
Cleat Alignment Tolerance	PC10/PC20 Parallel To Belt Teeth ±0.005” per inch (±0.13 per mm) of Profile Length	
	CC40/FC12 Perpendicular To Belt Edge ±0.010” per inch of Profile Length	
Multiple Cleats Across Belt	Maximum of 3 Profiles Across Belt, Pattern Must Be Symmetrical to Belt Centerline, 1.5” (38 mm) or 2” (51 mm) Separation Between Profiles	
Belt Sections Allowed	PC20, FC9, FC12, PC10, CC40	

Note: See belt specifications for minimum sprocket diameter and minimum back bend diameter.

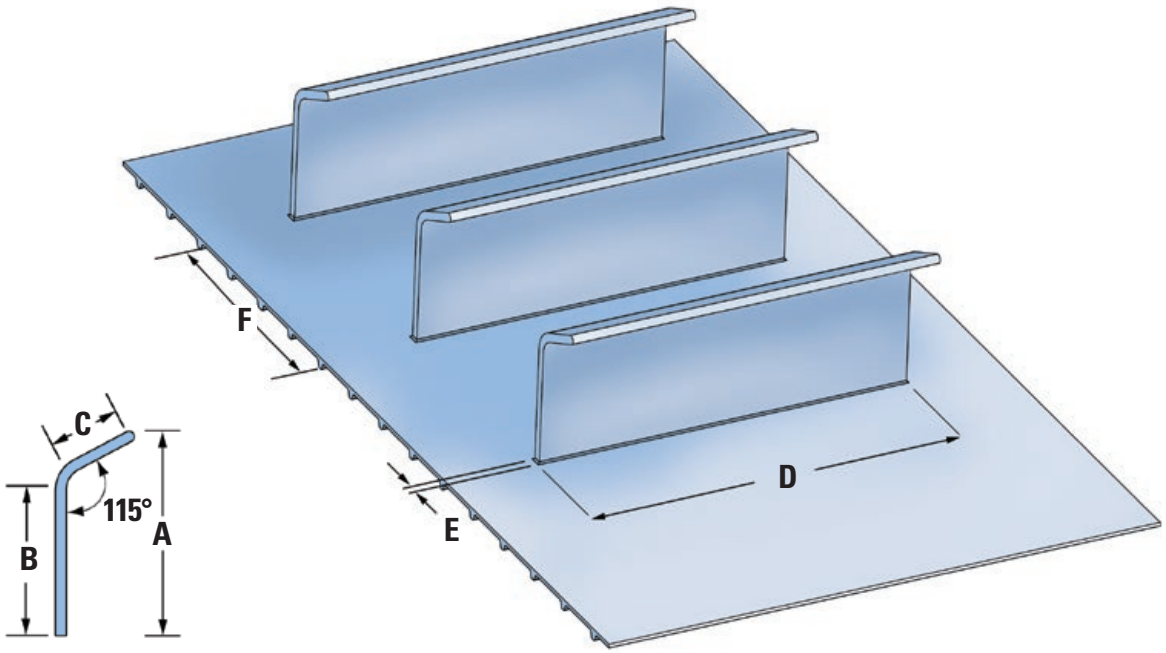


Fabrication and Splicing

SCOOP CLEATS

Scoop Cleat Specifications

Scoop Cleat Dimensions				
Overall Height "A"	5"	4"	3.5"	Height Tolerance +0.375"/ -0"
Vertical Height "B"	4" (reference)	3" (reference)	2.5"(reference)	
Scoop Length "C"	2" (reference)	2" (reference)	2" (reference)	
Length (Width Across Belt) "D"	4" (101 mm) Min. Up to 36" (0.9 mm) Max.			Length Tolerance ±0.063" (1.60 mm)
Thickness "E"	0.276" (7 mm) Reference			
Durometer	95 Shore A			
Color	PosiBlue			
Scoop Welding Tolerances				
Minimum Belt Length	80"			
Minimum Cleat Spacing "F"	3.94"			
Cleat Spacing	Spacing Must Be Multiple of Pitch Length			
Cleat Location	PC20: ±0.063 (1.5 mm)			Over or Halfway Between Teeth
	CC40: ±0.125" (3.1 mm)			Halfway Between Teeth
Cleat Centering Tolerance	±0.063			
Multiple Cleats Across Belt	Maximum of 3 Cleats Across Belt Width; Pattern Must Be Symmetrical to Belt Centerline and 1.5" to 2" Separation Between Cleats			
Belt Sections Allowed	PC20, CC40			
Profile Loading				
Scoop Cleat with Overall Height 5" Loaded 2" from Base	1.2 lbs per Inch of Cleat Length			
Scoop Cleat with Overall Height 4" Loaded 1.5" from Base	1.6 lbs per Inch of Cleat Length			
Scoop Cleat with Overall Height 3" Loaded 1.25" from Base	1.9 lbs per Inch of Cleat Length			



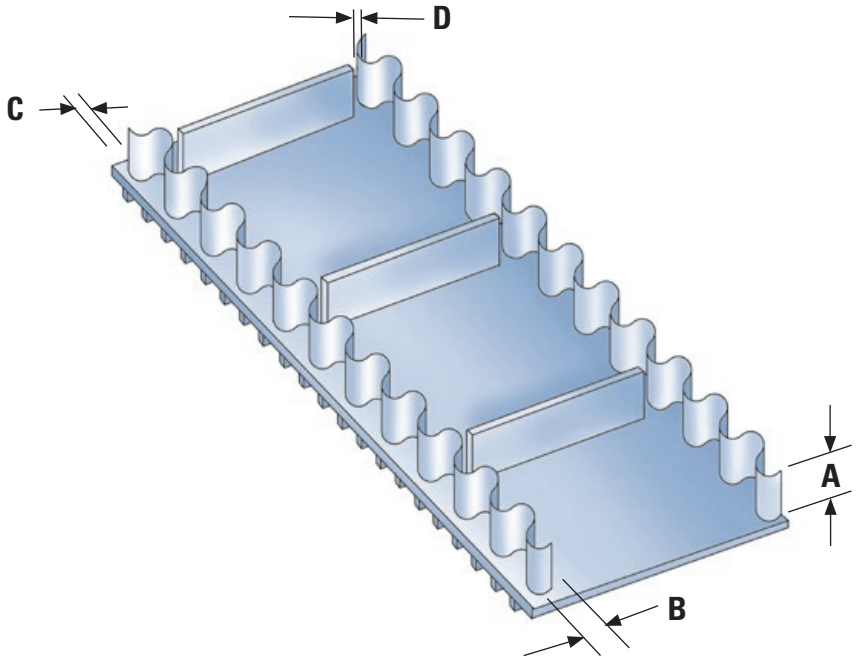
Fabrication and Splicing

SIDEWALLS

Corrugated sidewalls can be added to any Gates Mectrol Food Grade Belt to prevent conveyed product from falling off the edge of the belt.

Sidewall Specifications

Sidewall Dimensions		
Height "A"	1.38 - 4.33" (35 - 110 mm)	Height Tolerance ±0.25" (±6.4 mm)
Length (Width Across Belt) "B"	1.77" (45 mm)	Length Tolerance ±0.20" (±5 mm)
Thickness	0.079" (2.0 mm) Nominal	Thickness Tolerance ±0.015" (0.4 mm)
Color	PosiBlue	
Durometer	85 Shore A	
Sidewall Tolerances		
Minimum Belt Length	80" (2.0 m)	
Maximum Belt Length	100' (30.5 m)	
Minimum Belt Width	8" (200 mm)	
Maximum Belt Width	36" (914 mm)	
Minimum Distance: Belt Edge to Sidewall "C"	0.25"±0.075" (6 mm ±2 mm)	
Minimum Distance: Cleat and Sidewall "D"	0.375"±0.075" (9.5 mm ±2 mm)	
Minimum Sprocket Diameter Type, Which Ever is Greater	2.5x Sidewall Height or Minimum Diameter Recommendation for Belt and Fastener	
Minimum Back Bend Diameter	1.5x Sidewall Height or Minimum Diameter Recommendation for Belt, Whichever is Greater	
Sidewall Loop Alignment	Sidewalls Are Not Timed - Loops Will Not Line Up	
Sidewall End Weld	Aligned Tab or Opposed Tab	
Belt Sections Allowed	FC12, PC20, PC10, CC40	



Fabrication and Splicing

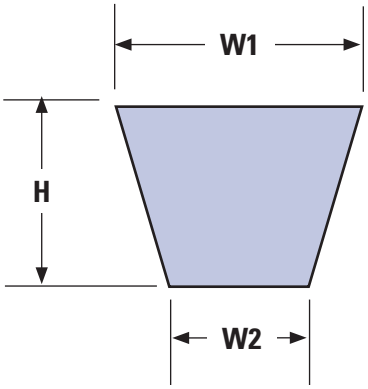
V-GUIDES

V-Guides can be added to FlatClean belting to eliminate lateral belt movement.

V-Guide Specifications

Size	W1	W2 *	H	Hardness Shore A	Min. Pulley Diameter	Color
K6 - Solid	6 mm	4 mm	4 mm	70	1.5"	Translucent
K6 - Notched	6 mm	4 mm	4 mm	90	1.0"	Translucent
K8 - Solid	8 mm	5 mm	5 mm	70	2.0"	Translucent
K13 - Solid	13 mm	8 mm	6 mm	70	3.0"	Translucent
K13 - Notched	13 mm	8.5 mm	6.5 mm	90	2.5"	Translucent
A - Solid	0.5"	0.31"	0.31	70	3.5"	Translucent
A - Notched	0.5"	0.27"	0.31	90	3.0"	Translucent
B - Solid	0.66"	0.41"	0.41"	70	4.5"	Translucent
C - Solid	0.88"	0.53"	0.53"	70	7.0"	Translucent

* For reference only



Fabrication and Splicing

SPLICING OPTIONS

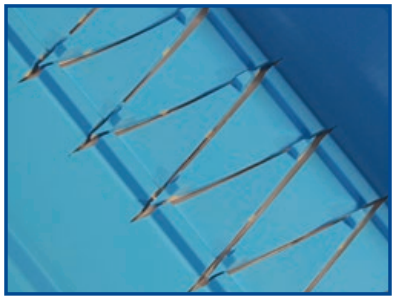
Note: Fastener strength ratings are specific to the belt to which they are applied. See Maximum Allowed Tension specifications in belting specifications tables.

- **Finger Weld** – uses a 30 mm x 70 mm tapered finger and a platen press weld. The shear strength provided by the overlapping tension members provides for the highest maximum allowable belt tension.

- **Split Tooth Weld** – The preferred straight cut splice for PosiClean is a "split tooth" weld. The weld of a straight cut through a tooth is stronger than that of a straight cut between teeth. This is because 1) the weld surface area is greater through the tooth than between the teeth and 2) there is less belt flexing at the tooth and, therefore, less stress. Preparing belt ends with a straight cut requires simple tooling and is done easily and quickly. Tapered finger welds can also be used for field welds but require finger punch tooling. Conventional butt welding in the web is also acceptable.

- **PosiLace™ Fastening Pin** – meets low to medium load requirements without field welding to achieve a maximum allowable tension of 21 lbs/in. Belt ends are prepared at the factory and the belt is joined by a single pin inserted after the belt is placed in position on the equipment. This "living" fastening solution allows for removal and replacement of the belt as often as desired – without ever having to weld.

- **Other Mechanical Fasteners** – From wire hooks to metal staples, standard conveyor fasteners are available are available for those situations when quick assembly/disassembly is required. Belt ends must be cut properly prior to installing mechanical fasteners to ensure proper pulley mesh.



Finger Weld

Split Tooth Weld

PosiLace™ Fastening Pin

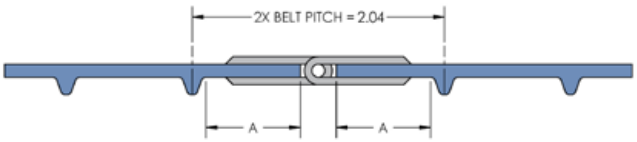
Flexco® UX1SS Clipper® Wire Hooks

Flexco® Alligator® Plastic Rivet

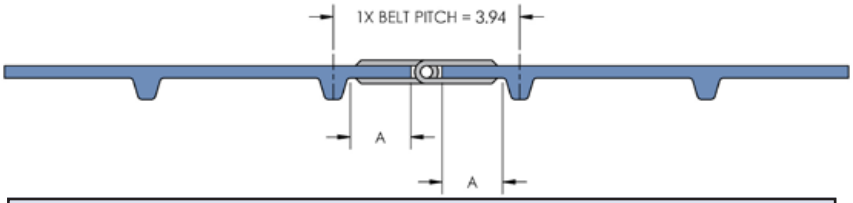
Flexco® Alligator® Ready Set™ Staple

Fabrication and Splicing

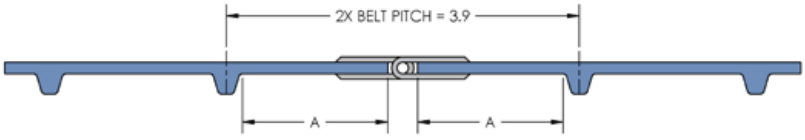
Mechanical Fastening Preparation Dimensions



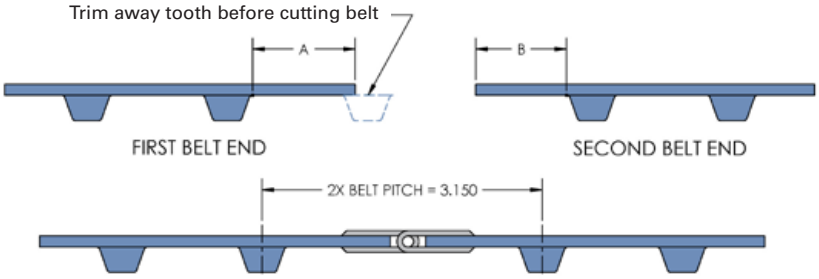
PC10 Lacing	Dimension A
Flexco® UX1SS Clipper® Wire Hook	0.85″ (21.5 mm)
Flexco® APF100 Alligator® Plastic Rivet	0.79″ (20 mm)
Flexco® RS62 Alligator® Ready Set™ Staple	0.79″ (20 mm)



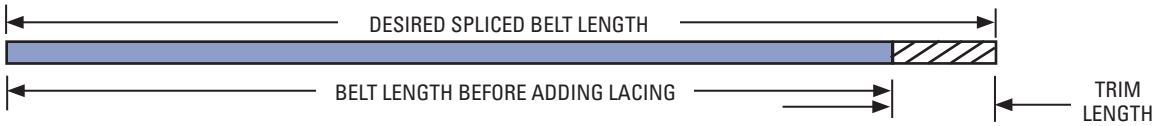
PC20 Lacing	Dimension A
Flexco® UX1SS Clipper® Wire Hook	0.73″ (18.5 mm)



PC20 Lacing	Dimension A
Flexco® APF150 Alligator® Plastic Rivet	1.65″ (42 mm)
Flexco® RS125 Alligator® Ready Set™ Staple	1.65″ (42 mm)



CC40 Lacing	Dimension A	Dimension B
Flexco® APF150 Alligator® Plastic Rivet	1.18″ (30 mm)	1.05″ (26.5 mm)
Flexco® RS125 Alligator® Ready Set™ Staple	1.18″ (30 mm)	1.05″ (26.5 mm)



FC9/12 Belt Length Before Adding Lacing = Desired Spliced Belt Length - Trim Length	
	Trim Length
Flexco® UX1SS Clipper® Wire Hook	0.22″ (5.5 mm)
Flexco® APF100/150 Alligator® Plastic Rivet	0.28″ (7.0 mm)
Flexco® RS62/125 Alligator® Ready Set™ Staple	0.39″ (10 mm)

Fabrication and Splicing

Minimum Sprocket/Pulley Diameter for Mechanically Spliced Belts

	PC10	PC20	CC40	FC9	FC12
PosiLace™	NR	6.27" (159 mm)	NR	NR	NR
Flexco® UX1SS Clipper® Wire Hook	3.24" (82 mm)	6.27" (159 mm)	NR	3.00" (76 mm)	3.00"(76 mm)
Flexco® APF100 Alligator® Plastic Rivet	3.24" (82 mm)	NR	NR	3.00" (76 mm)	NR
Flexco® APF150 Alligator® Plastic Rivet	NR	6.27" (159 mm)	6.4" (163 mm)	NR	3.00" (76 mm)
Flexco® RS62 Alligator® Ready Set™ Staple	3.24" (82 mm)	NR	NR	3.00" (76 mm)	NR
Flexco® RS125 Alligator® Ready Set™ Staple	NR	6.27" (159 mm)	6.4" (163 mm)	NR	3.00" (76 mm)

NR= Not Recommended

Note: Fastener strength ratings are specific to the type of belt being spliced.
See the *Max. Allowable Tension Charts* found on the previous pages for fastener strength ratings.

Fabrication and Splicing

DEWATERING BELT

Belt serves common produce processing applications such as fruits and vegetables.

- Embedded Kevlar® cord prevents belt stretch
- Ether grade urethane improves water resistance
- USDA approved and EU compliant

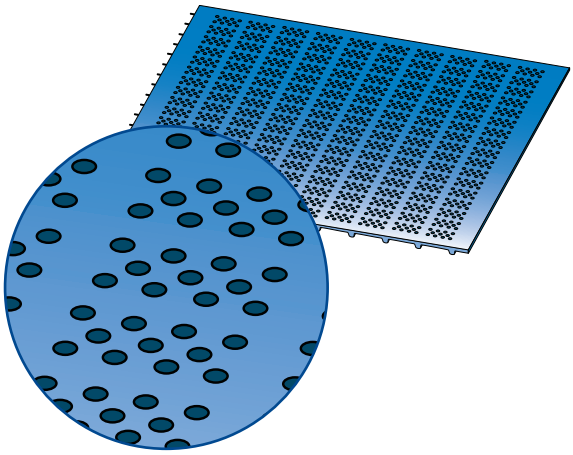
Belting Specifications

Belt Options	PC20 Modified
Designator	KV-FDA
Cords/Inch	1
Pitch (nominal)	1.97" (50 mm)
Hardness - Shore A	95
Specific Belt Weight (lbs/ft/in)	0.089
Specific Belt Stiffness (lbs/inch)	3700
Min. Sprocket Dia. Service Temp Above 25°F	3.76" (95.5 mm)
Min. Sprocket Dia. Service Temp Below 25°F	6.27" (159.3 mm)
Min. Back Bend Dia. Above 25°F	6" (152.4 mm)
Min. Back Bend Dia. Below 25°F	10" (254.0 mm)
Service Temperature Range	-4° to 158° F (-20° to 70°C)
Ultimate Belt Strength (lbs/in of width)	132
Coefficient of Friction (dynamic/static)	
Urethane vs. UHMW - Dry	0.33 / 0.42
Urethane vs. UHMW - Wet	0.35 / 0.58
Urethane vs. Stainless Steel - Dry	0.52 / 0.57
Urethane vs. Stainless Steel - Wet	0.40 / 0.57
Coefficient of Thermal Expansion (in/in/°F) (mm/mm/°C)	1.09 x 10-4 1.96 x 10-4
Color	PosiBlue
Min. and Max. Width	5"/36" (127/914 mm)
Std. Roll Stock Length	200' (61 m)

Max. Allowable Tension (lbs per inch width)[1] based on Splicing Option

Belt Options	
Split Tooth Butt Weld	40
PosiLace™	21

[1] Max allowable set as the lower of 25% yield strength or 2% stretch of weld or splice



Opening	% Open
3/16" Dia. - Round	17%
1/4" Dia. - Round	21%

Fabrication and Splicing

DEWATERING BELT

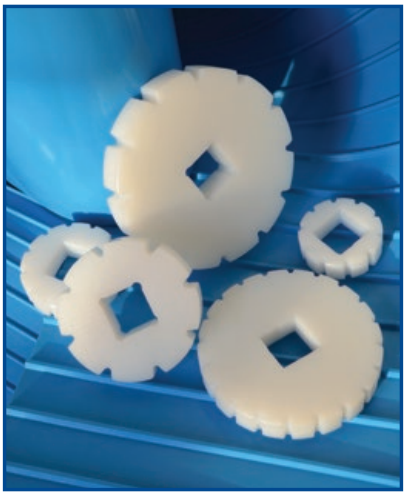
PosiClean Sprocket Specifications

			PC20				
Tooth Count			**6**	**8**	**10**	**12**	**16**
Outside Diameter		inch	3.7	4.9	6.2	7.5	10.0
(Nominal*)		mm	94	126	158	189	253
Width		inch	1.3	1.3	1.3	1.3	1.3
(Nominal)		mm	32.0	32.0	32.0	32.0	32.0
Bore Size	Imperial	square, in	1.5	1.5	1.5	1.5	1.5
		round, in	1	1	1	1	1
	Metric	square, mm	40	40	40	40	40
		round, mm	30	30	30	30	30
In Stock(Square Bore Only)	(F = Flange, NF = No Flange)		F, NF	F, NF	F, NF	F, NF	F, NF
Weight		(lbs)	.32	.68	1.1	1.7	3.1

* Imperial keyway sizes on round bores conform to ANSI standard B17.1 - 1967 (R1989); metric keyway sizes conform to BS 4235: Part 1: 1972 (1986)

For pulleys with flanges, add .196" to outside diameter to get flange diameter.

Notes:
- Material UHMW-PE
- Sprockets must be locked into position on the shaft.
- PC20 belting can run on some competitor's plastic modular belting with 8, 10 and 12 tooth sprockets.



PosiClean Sprocket & Support Guidelines

Belt Width	**9" (221 mm)**	**12" (305 mm)**	**15" (381 mm)**	**18" (451 mm)**	**21" (533 mm)**	**24" (610 mm)**	**27" (686 mm)**	**30" (672 mm)**	**36" (914 mm)**
Min. No. Sprockets *Max. 5" (127 mm) spacing center to center*	3	4	4	5	6	6	7	7	9
No. of Sprockets for max. *allow. tension Max. 3" (76 mm) spacing center to center*	4	5	6	7	8	9	10	11	13
Min. No. Carryway Supports *6" (152 mm) spacing center to center*	3	3	4	4	5	5	6	6	7

Food Belt Conveyor Design Guideline Index

Food Belt Conveyor Design Guidelines

DRIVE CONFIGURATION

Head Drive Configuration (pull)

- Most common configuration.
- The conveying side of the belt is traveling (pulled) toward the drive (powered) sprockets. See Figure 1.

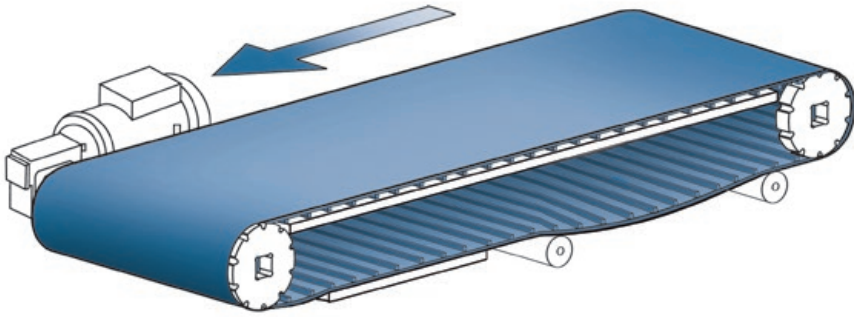


Figure 1

Tail Drive Configuration (push)

- The conveying side of the belt is traveling (pushed) away from the drive (powered) sprockets. See Figure 2
- Belt needs to be under tension at all times to prevent it from jumping the drive sprocket grooves.
- Maximum recommend conveyor length: 15 feet (4.6m).

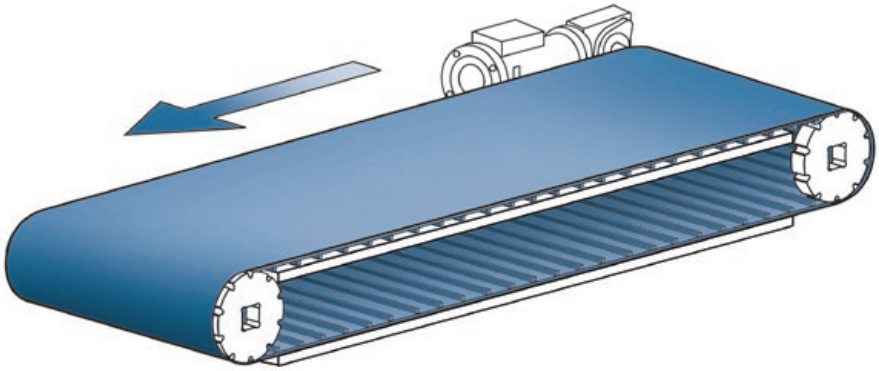


Figure 2

Food Belt Conveyor Design Guidelines

Center Drive Configuration

- Gates Mectrol does not recommend this drive configuration because belt tracking can be difficult.
- The drive sprockets in this configuration are not placed at the conveyor ends but within the conveyor span length. See Figure 3. It is used typically for bi-directional conveyors.
- Back bend rollers need to be flanged to assist belt tracking.
- Carryway support, see Basic Straight Line Conveyor guidelines
- This configuration is not suitable for belts with cleats and/or corrugated side walls.

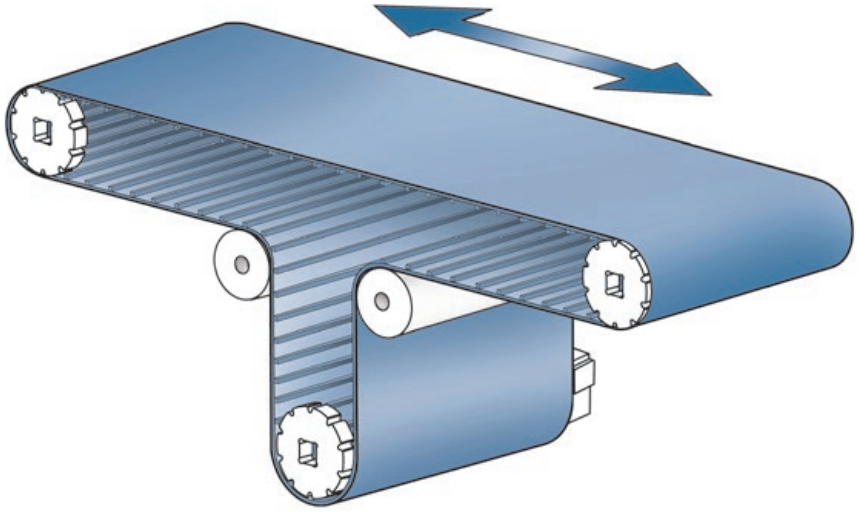


Figure 3

Food Belt Conveyor Design Guidelines

Center Drive Configuration Specifications

	PC10	PC20	CC40
Drive sprocket - Minimum diameter	12 Tooth 3.8" (97 mm)	10 Tooth 6.2" (157 mm)	12 Tooth 5.9" (150 mm)
Back-bending roller - Minimum diameter <25°C (77°F)	3.5" (89 mm)	6" (150 mm)	6" (150 mm)
Back-bending roller - Minimum diameter >25°C (77°F)	5" (125 mm)	8" (200 mm)	8" (200 mm)
Minimum Flange Height	0.375" (10 mm)	0.500" (13 mm)	0.375" (10 mm)*

* If the drive pulley does not capture the belt teeth laterally

DRUM MOTOR (MOTORIZED PULLEY)

- Motorized pulleys, designed for Gates Mectrol Food Grade Belts, are available from major manufacturers of these conveyor drives.
- Motorized pulleys, by the nature of their design, are well suited for meeting conveyor sanitation requirements.

BASIC STRAIGHT LINE (HORIZONTAL OR INCLINE) CONVEYOR

Components

1. Drive Sprocket
2. Idler (Tail) Sprocket
3. Carryway Support
4. Returnway Support Rail
5. Returnway Support Roller

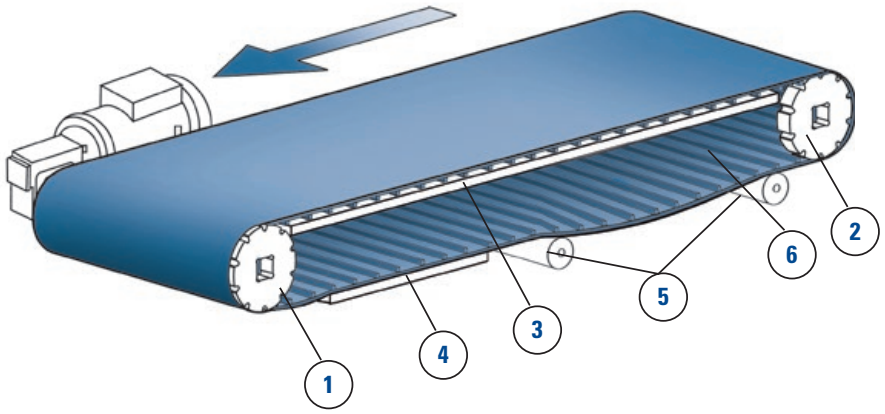


Figure 4

Food Belt Conveyor Design Guidelines

Belt Guiding and Tracking

- The conveyor frame must be rigid, square and aligned in all planes for the Gates Mectrol food grade belts to track properly.
- PosiClean
  - PosiClean belts are not self-tracking designs. External guides along the belt edges are required. Guides can be stationary or rollers. Surfaces on stationary guides that contact the belt should be made of UHMW-PE. Conveyor side rails or frames can serve as stationary guides.
  - Minimum heights of guides or roller flanges
    - PC10: .375" (9.5 mm)(~1.5x belt thickness)
    - PC20: .500" (12.7 mm)
- CenterClean
  - CenterClean is guided by the belt teeth by the carryway support. See dimension C in Figure 6
- FlatClean
  - V-Guides: See page 22 for available V-guides and minimum recommended pulley diameters.

Carryway Support

- Continuous support rails, parallel to the belt length, made of UHMW-PE or acetal (POM), is the preferred carryway support for PosiClean, CenterClean and FlatClean belts. Gates does not recommend stainless steel support rails.
- Joints in support rails: downstream rail should be should be slightly lower than the joining upstream rail or have a beveled end to prevent damage to belt teeth or underside of the belt.
- Rail width minimum: 1.25" (32 mm)
- Spacing recommended for parallel support rails:
  - PosiClean , PC10 and PC20, Figure 5
    - Distance between rails, Dim. A : 4" - 6" (100 - 150 mm)
    - Distance from belt edge to outer rail, Dim. B: 0.5" – 2" (15 – 50 mm)

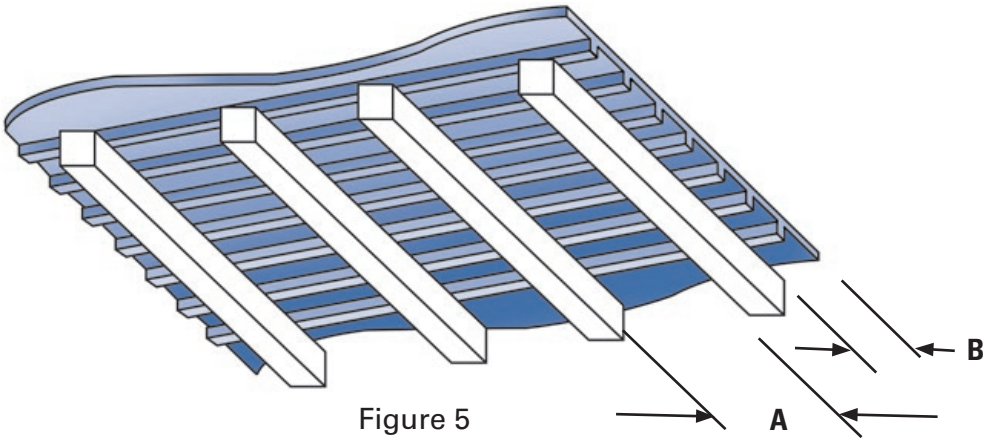


Figure 5

Food Belt Conveyor Design Guidelines

Belt Guiding and Tracking (continued)

Carryway Support (continued)

- Spacing recommended for parallel support rails:
  - CenterClean, CC40, Figure 6
    - Distance between rails guiding belt teeth, Dim C: 3.15” (80.0 mm)
    - Distance between rails not guiding belt teeth, Dim D: 4” – 6” (100 – 150 mm)
    - Distance from belt edge to outer rail, Dim E: 0.5” – 2” (15 – 50 mm)
  - FlatClean, FC12
    - Distance between rails: 4 - 6 “ (100 - 150 mm)
    - Distance from belt edge to outer rail: 0.5 - 2” (15 - 50 mm)

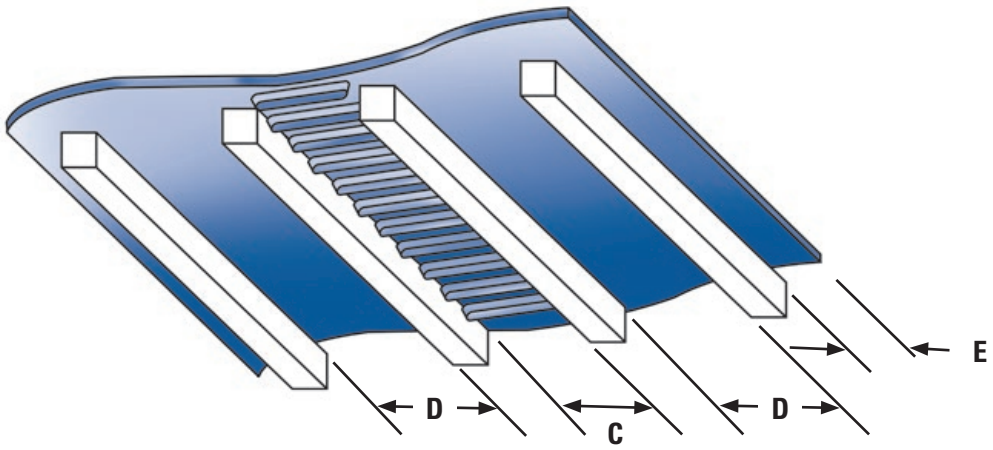


Figure 6

Food Belt Conveyor Design Guidelines

Returnway Support

- Returnway supports can be continuous rails that are parallel to the belt length (reference figure 7), intermittent supports such as rollers or stationary bars that are perpendicular to the belt length, or a combination of both. The belt contact surfaces of stationary supports should be made of UHMW-PE or acetal (POM).
- Continuous rails
  - Rail width: 1″ – 2″ (25 – 50 mm)
  - Joints in support rails: downstream rail should be should be slightly lower than the joining upstream rail to prevent damage to belt teeth or underside of the belt.
  - Rail Spacing, Figure 7
    - Distance between rails, Dim. F : 6″ - 12″ (150 - 300 mm)
    - Distance from belt edge to outer rail, Dim. G: 2″ – 3″ (50 – 75 mm)

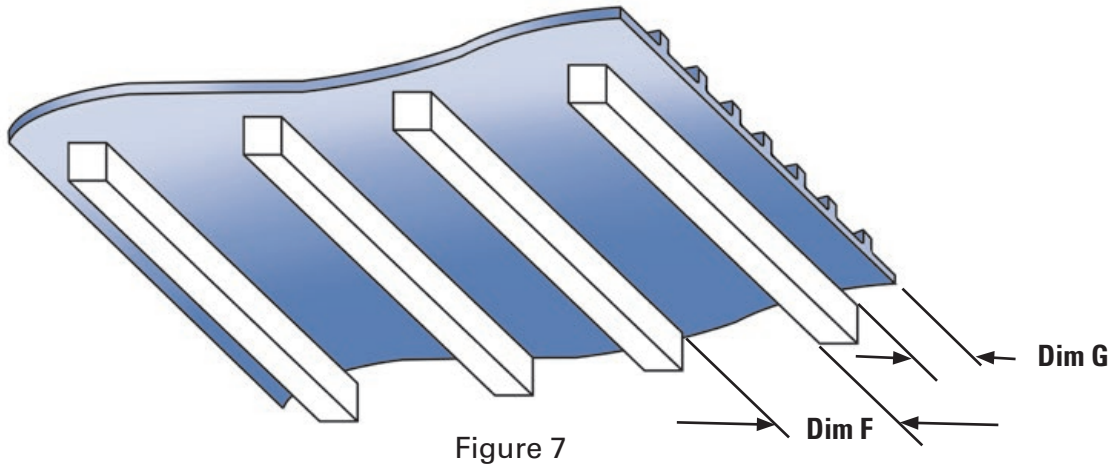


Figure 7

- Support rollers or stationary bars
  - Width: same width as the belt
  - Minimum radius:
    - PC10, FC12 : 1″ (25 mm)
    - PC20, CC40: 1.5″ (37 mm)
  - Typical spacing of roller shafts or stationary bars: 36″ – 60″ (1 - 1.5 meters)
  - Typical catenary sag between supports: 2″ - 5″ (50 – 125 mm)

Food Belt Conveyor Design Guidelines

Snub roller

- The purpose of the snub roller is to increase the belt angle of wrap on the drive sprockets.
  - The snub roller should be positioned so that angle of wrap is between 180° - 225°.
- We recommend the use of snub rollers at the drive sprockets for:
  - Applications involving both heavy loads with little or no belt pretension. Loads are considered heavy if the calculated belt tensions at 50% or more of the belt rating.
  - Applications utilizing the minimum recommended sprocket diameter with little or no belt pretension.

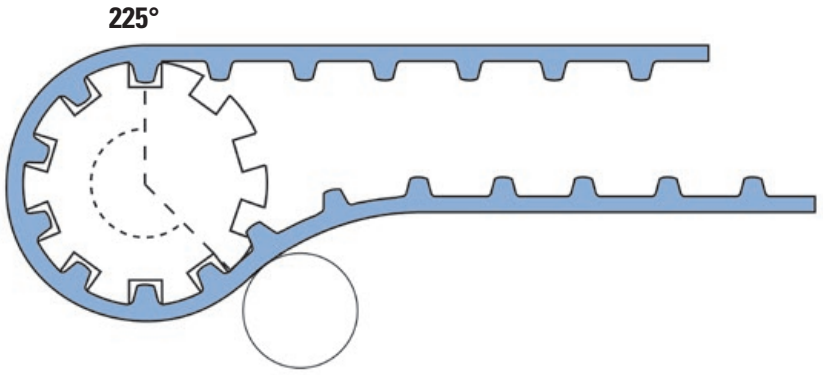


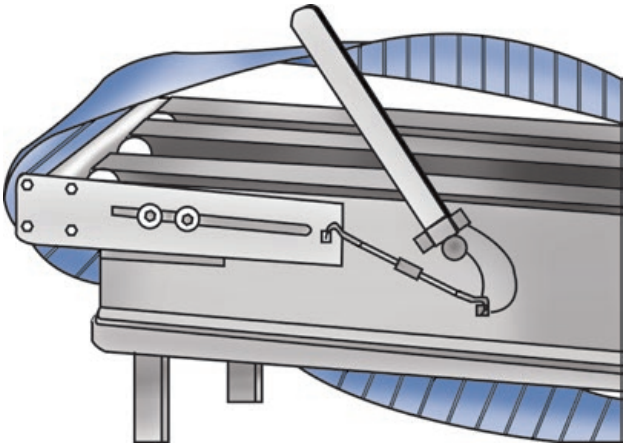
Figure 8

- Snub roller dimensions:
  - Width: same width as the belt
  - Minimum diameter:
    - PC10
      - above 25°F (-4°C): 3.5″ (89 mm)
      - at or below 25°F (-4°C): 5″ (125 mm)
    - PC20, CC40
      - above 25°F (-4°C) : 6″ (150 mm)
      - at or below 25°F: 10″ (250 mm)
    - FC12
      - above 25°F (-4°C): 3″ (75 mm)
      - at or below 25°F: 4.5″ (114 mm)

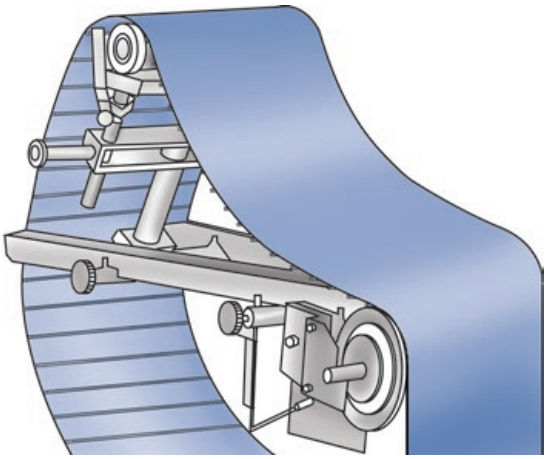
Food Belt Conveyor Design Guidelines

Tensioning Device (Tensioner/Take- Up)

- Gates Mectrol recommends that conveyors be installed with quick release tensioners or pivot arm to allow the belt to be cleaned on the conveyor thus eliminating the need for belt removal during the cleaning process. Such tensioners allow the belt to be quickly slacked off in order that it can be lifted in order to clean the underside of the belt and the conveyor carryway.
  - A tensioning device or tensioner allows the belt to be slack while it is installed onto the conveyor. It is also necessary for adjusting the belt tracking.
  - Recommended minimum take-up travel: 5" – 8" (125 – 200 mm)



Quick Release Tensioner



Pivot Arm

Conveyor Sidewalls

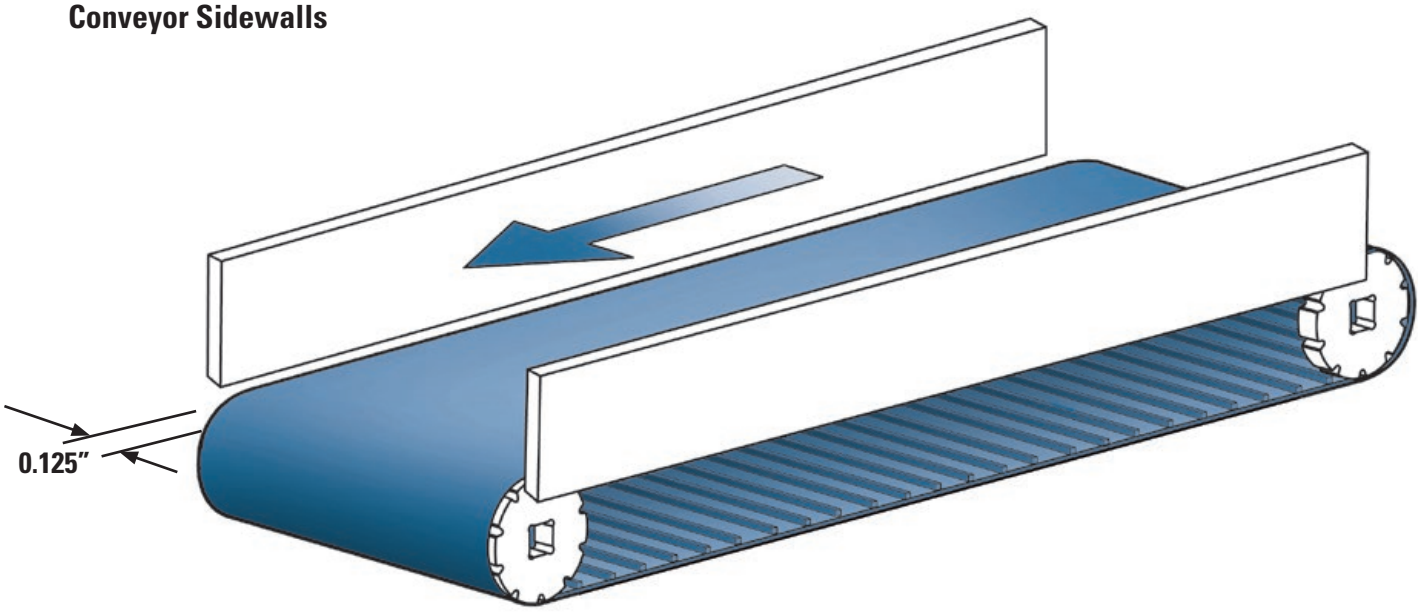


Figure 9

- Minimum recommended gap between belt edge and conveyor sidewall, 0.125"

Food Belt Conveyor Design Guidelines

STRAIGHT LINE (HORIZONTAL OR INCLINE) CONVEYOR WITH CLEATS

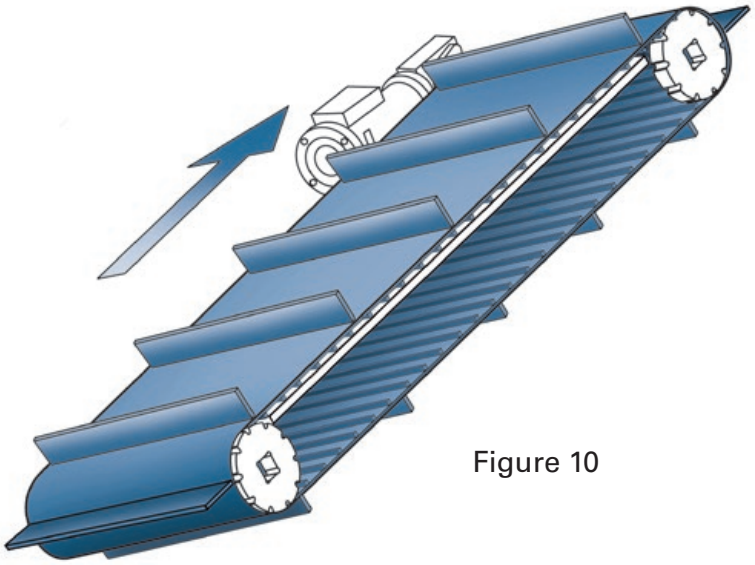


Figure 10

General

- Cleat geometries and specifications
  - See pages 19 and 20.
- Minimum Drive and Idler Sprocket Diameters
  - See belt and mechanical splice data found on pages 10, 14, 17 and 25 .

Carryway Support

- See Horizontal Basic Conveyor Construction on pages 31 and 32.

Returnway Support

- **Maximum recommended belt width without center support: 18”**
- Returnway support can be continuous rails that are parallel to the belt length, support rollers, or a combination of both.
- Conveyors with center returnway supports require split cleats, see Figures 11 and 12.
- Continuous rails
  - Recommend that continuous support rails contact the belt conveying surface and not the top of the cleats and be made of UHMW-PE or acetal (POM). See Figure 11
  - Minimum width for outer rails: 1.25” (32 mm)
  - Recommended distance from rails to cleat, 0.25” (6 mm). Guides return side of belt without binding.

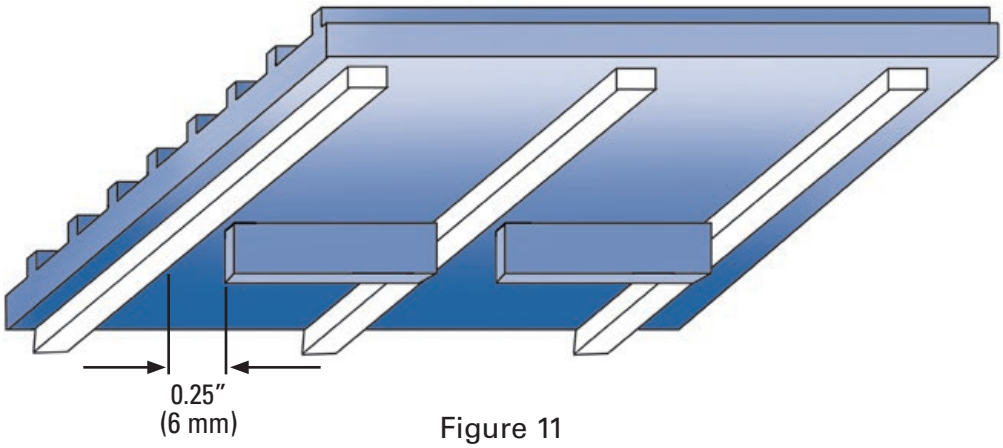


Figure 11

Food Belt Conveyor Design Guidelines

- Support Rollers
  - Dynamic support rollers can be used if conveyor has center returnway rollers. See Figure 12
  - Roller Width: 1″ minimum (25 mm)
  - Minimum roller diameter:
    - PC10, FC12 : 2″ (50 mm)
    - PC20, CC40: 3″ (75 mm)
      - Large enough so cleats can clear roller shaft
  - Recommended clearances, Figure 13
    - Recommended distance from rollers to cleat, 0.25″ (6 mm). Prevents belt and cleats from binding on support rollers.
  - Typical spacing along belt length: 36″ – 60″ (1 - 1.5 meters)
  - Typical catenary sag between supports: 2″ - 5″ (50 – 125 mm)

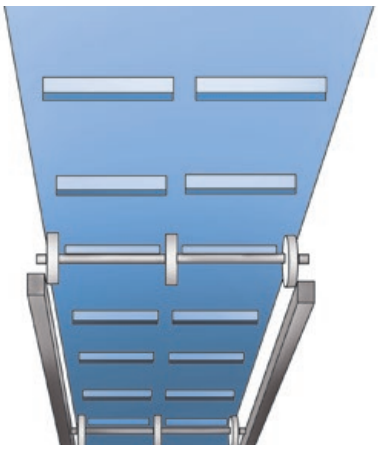


Figure 12

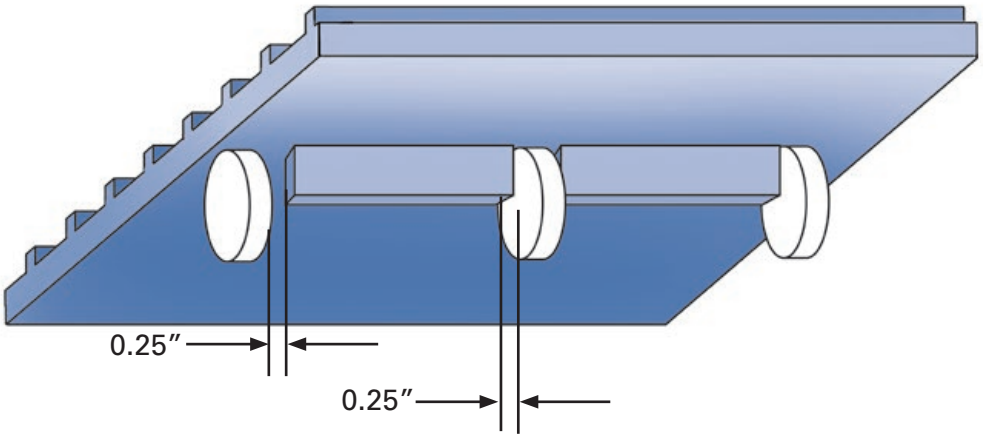


Figure 13

Food Belt Conveyor Design Guidelines

STRAIGHT LINE CONVEYOR WITH CORRUGATED SIDEWALLS

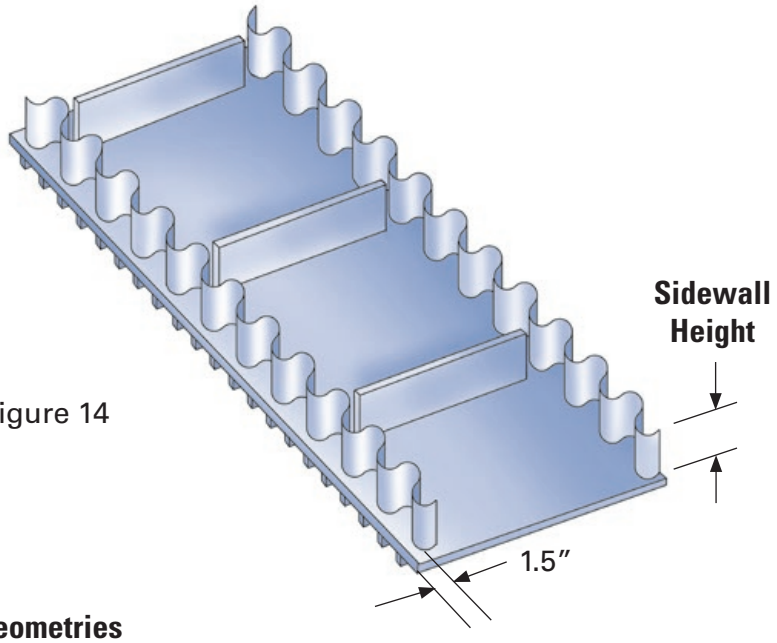


Figure 14

Corrugated Sidewall Geometries

- See page 21 for sidewall specifications
- Suggested corrugated sidewall height: 0.5” above height of cleats.

Minimum Sprocket/Pulley Diameter

- Minimum sprocket diameter = 2.5 x Sidewall Height or minimum diameter recommendation for belt and fastener type, whichever is greater.
- Minimum back bend diameter = 1.5 x Sidewall Height or minimum diameter recommendation for belt type, whichever is greater.

Carryway Support

- See Horizontal Basic Conveyor Construction, pages 31 and 32.

Returnway Support

- Recommended 1.5” sidewall indent.
- Recommend continuous support rails: contacting the base belt and not the top of the cleats, arranged parallel to the belt length, and made of UHMW-PE or acetal (POM). See Figure 15.
- Minimum width for outer rails: 1.25” (32 mm)
- Recommended distance from outer rails to sidewall: 0.25” (6 mm). Prevents belt and sidewall from binding on guide rails.

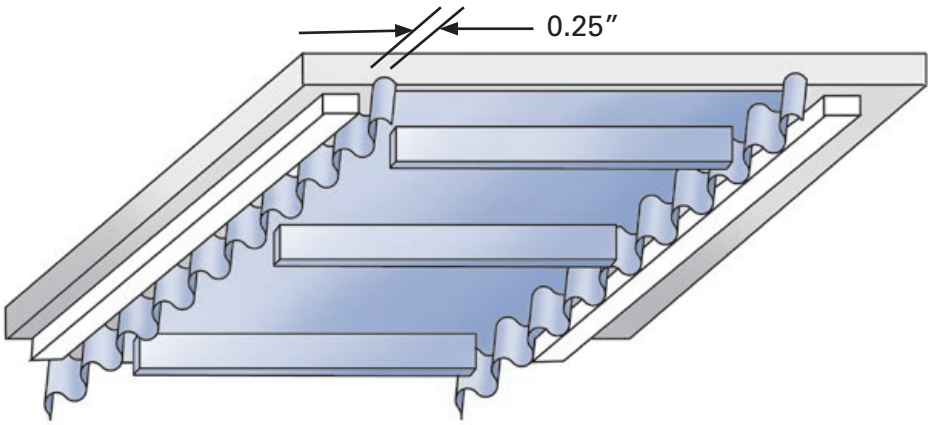


Figure 15

Food Belt Conveyor Design Guidelines

- Dynamic rollers can be used in place of stationary rails provided the belt has sufficient stiffness across its width.
  - Roller Width: 1″ minimum (25 mm)
  - Minimum roller diameter:
    - Large enough so corrugated sidewalls and cleats can clear roller shaft
    - PC10, FC12: 2″ (50 mm)
    - PC20, CC40: 3″ (75 mm)
  - Recommended clearances
    - Recommended distance from outer rollers to corrugated sidewall: 0.25″ (6 mm).
  - Typical spacing along belt length: 36″ – 60″ (1 - 1.5 meters)
  - Typical catenary sag between supports: 2″ - 5″ (50 – 125 mm)

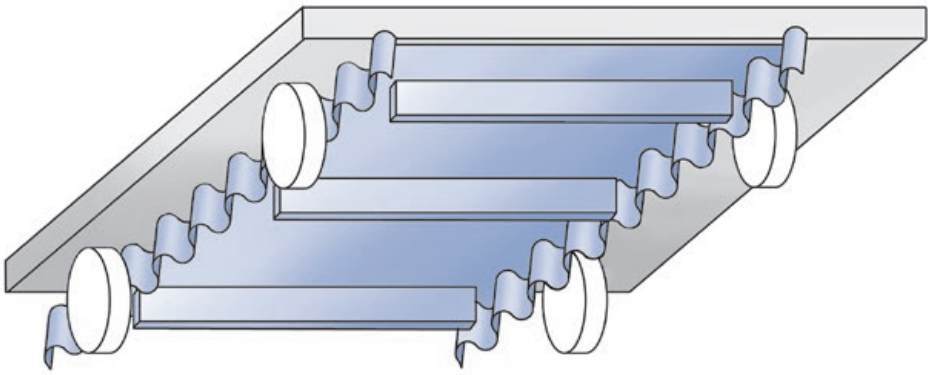


Figure 16

Food Belt Conveyor Design Guidelines

Z-CONVEYOR (GOOSE NECK)

We strongly **recommend using PosiClean PC20** for Z-conveyors. PosiClean's greater lateral stiffness and its distribution of loads across the full belt width help minimize the tendency of the belt to pull out from under the hold downs in the carryway transition areas. We **do not recommended CenterClean** for Z-conveyors.

Components

1. Drive sprockets
2. Transition sprockets
3. Transition hold down rollers
4. Transition rollers
5. Idler tail sprockets with take-up
6. Carryway support rails
7. Returnway support rails
8. Transition hold down
9. Transition support rail

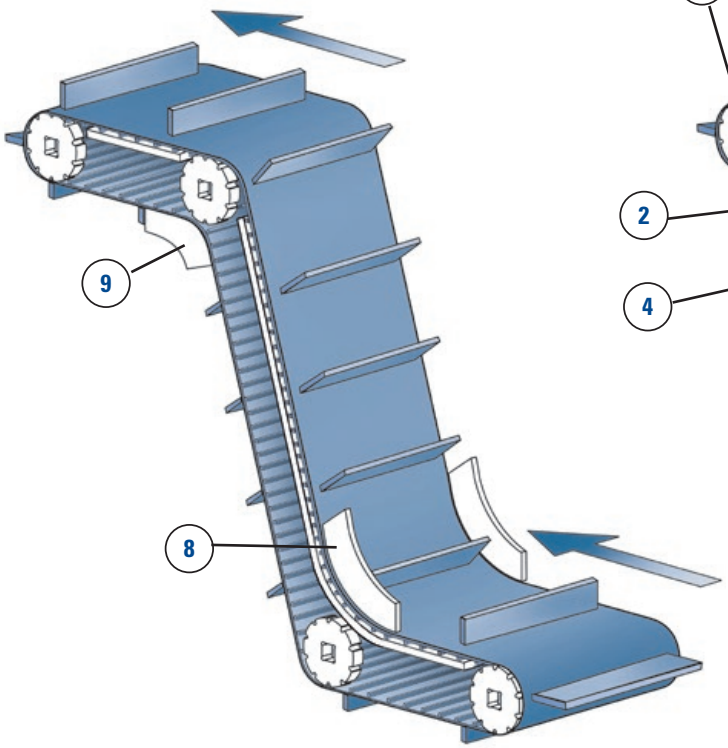


Figure 17

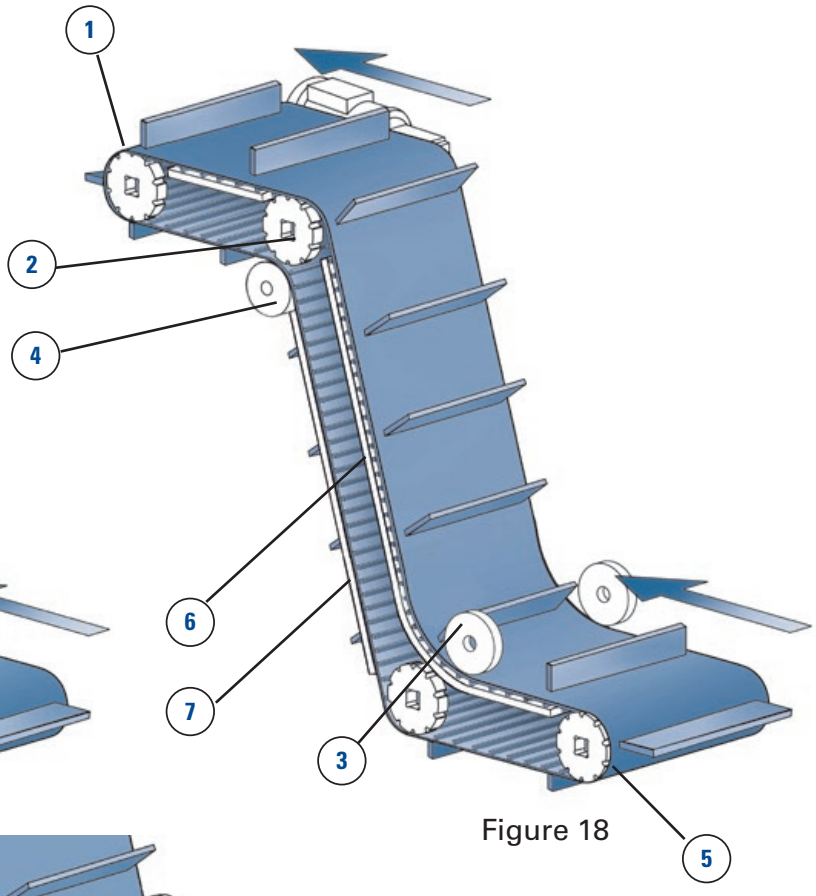
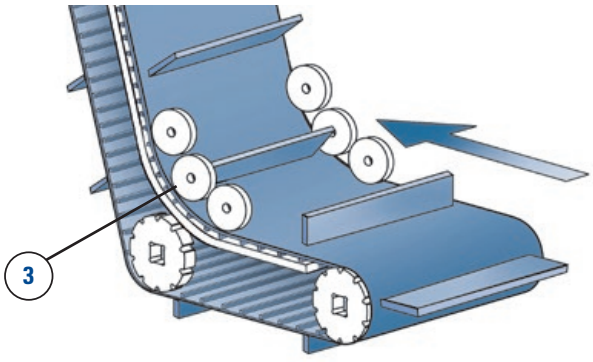


Figure 18



Food Belt Conveyor Design Guidelines

Carryway Transition - Horizontal to Incline

- **Gates Mectrol strongly recommends dynamic rollers as hold downs in the carryway transition area, especially for dry applications.**

- Hold Down Rollers
  - Roller minimum width: 1.5″ (38 mm)
  - Rollers minimum diameter **without** corrugated belt sidewalls
    - PC10
      - above 25°F: 3.5″ (89 mm)
      - at or below 25°F: 5″ (125 mm)
    - PC20
      - above 25°F : 6″ (150 mm)
      - at or below 25°F: 10″ (250 mm)
  - Rollers minimum diameter **with** corrugated belt sidewalls:
    - Minimum diameter = 1.5 x Sidewall Height or minimum diameter recommendation for belt type without sidewalls listed above, whichever is greater.
  - Recommended clearance between roller and cleat or corrugated sidewall: 0.25″ (6 mm)

- Hold Down Shoes
  - **Gates Mectrol does not recommend the use of hold down shoes.**
  - Hold Down Shoes are only to be used if the interface between shoe and belt is lubricated (e.g. wet) and the conveyance loads are light.
  - Hold down shoe minimum radius: 6″ (150 mm)
  - Minimum width: 1.5″ (38 mm)
  - Clearances
    - Clearance between shoe and cleats or side walls, Figure 19, Dim. O: 0.25″ (6 mm)
    - Clearance between base of shoe and belt conveying surface, Fig. 19, Dim. P: .063″ (1.5 mm)

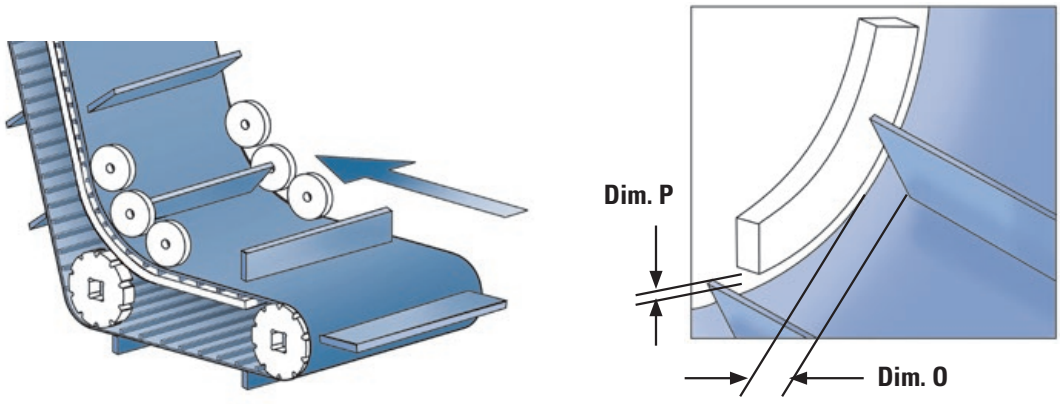


Figure 19

Food Belt Conveyor Design Guidelines

Carryway Transition- Incline to Horizontal

- **Gates Mectrol strongly recommends sprockets in this transition area to reduce the frictional drag and belt wear, especially for dry applications.**
  - Transitions sprockets
    - Minimum sprocket diameters: see belt data on pages 10 and 25.
    - Maximum sprocket spacing: see PosiClean Sprocket and Support Guidelines on page 12.
  - Transition rails are only to be used if the interface between the rails and belt is lubricated (e.g. wet) and the conveyance loads are light.
    - Minimum radius: 6" (150 mm)
    - Minimum width: 1.25" (32 mm)
    - Maximum rail spacing: 6" (150 mm)

Returnway Transition – Horizontal to Decline

- **Gates Mectrol strongly recommends dynamic rollers in this transition area to reduce the frictional drag and belt wear, especially for dry applications.**
- Transition Roller design guidelines: see Hold Down Rollers, page 41.
- Transition Support RailTransition rails are only to be used if the interface between the rails and belt is lubricated (e.g. wet) and the conveyance loads are light.
  - Minimum radius: 6" (150 mm)
  - Minimum width: 1.5" (38 mm)
  - Clearance between rail and cleats or side walls: .25" (6 mm)
  - For clarification see Figure 11 for cleats and Figure 15 for corrugated belt sidewalls.

Returnway Transition – Decline to Horizontal

- **Gates Mectrol strongly recommends sprockets in this transition area to reduce the frictional drag and belt wear, especially for dry applications.**
- Transitions sprockets
  - Minimum sprocket diameters: see belt data on pages 10 and 25.
  - Number of drive sprockets: see PosiClean Sprocket and Support Guidelines on page 12.
- Transition rails are only to be used if the interface between the rails and belt is lubricated (e.g. wet) and the conveyance loads are light.
  - Minimum radius: 6" (150 mm)
  - Minimum width: 1.25" (32 mm)
  - Maximum rail spacing: 6" (150 mm)

Carryway Support

- See Basic Straight Line Conveyor guidelines, page 31.

Returnway Support

- See Straight Line Conveyor with Cleats pages 36 and 37. For Straight Line Conveyor with Corrugated Sidewalls, see pages 38 and 39.

Food Belt Conveyor Design Guidelines

Drive Sprockets

- **Gates strongly recommends that drive sprockets are located at the discharge end of the conveyor, i.e., the conveyor is a head drive configuration.**
- Minimum diameter to ensure sufficient torque transmission
  - PC10: number of teeth – 12, diameter - 3.8" (97 mm)
  - PC20: number of teeth – 10, diameter – 6.2" (157 mm)
- Maximum sprocket spacing: see PosiClean Sprocket and Support Guidelines on page 12.

Tail Sprockets

- Minimum Idler Sprocket Diameters: see pages 10 and 25.
- Maximum sprocket spacing: 6" (152 mm).

Conveyor Sidewalls (fixed to conveyor frame) acting as hold downs

- Thickness, minimum: 1" (25 mm)
- Clearances: see hold down shoe dimensions on page 41.

RECIPROCATING CONVEYOR (TELESCOPING , SHUTTLE OR RETRACTABLE)

This design is **not recommended for belts with cleats or corrugated sided walls.** Experience has shown that the belt performs best with a full width back bend roller.

- Gates Mectrol recommends using PosiClean for reciprocating conveyors. We do not recommend CenterClean.
- Follow the guidelines in the section on Basic Horizontal Straight Line Conveyor for this conveyor design. Below are some additional guidelines for the reciprocating section of the conveyor.

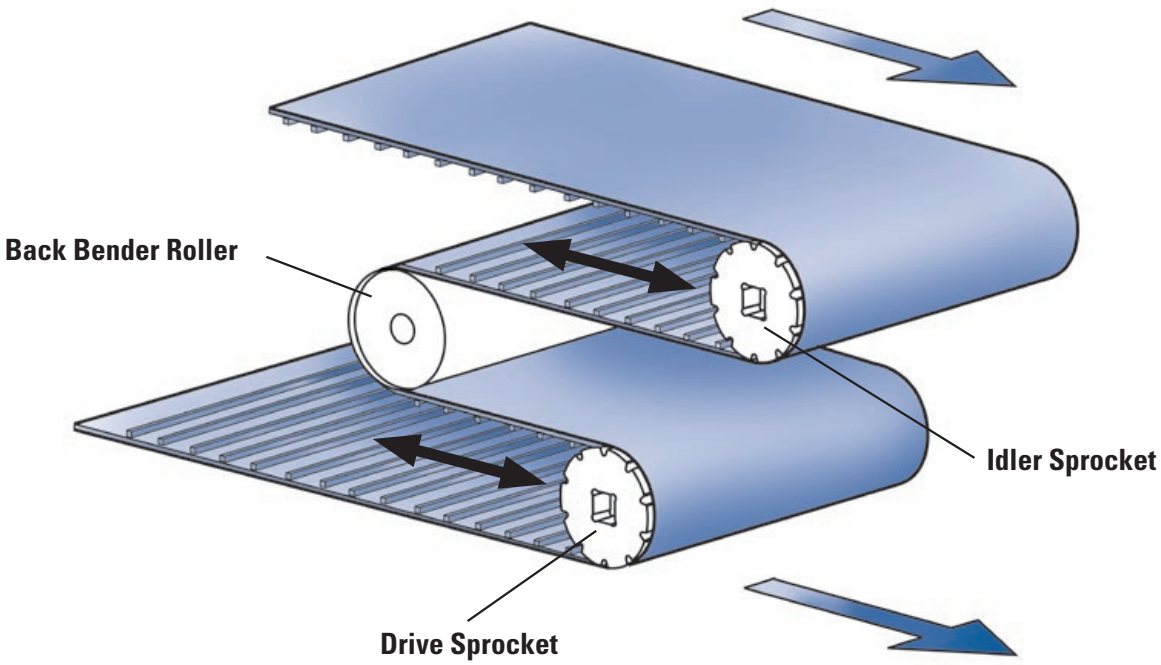


Figure 20

Food Belt Conveyor Design Guidelines

Belt Tracking

- The belt will not track properly in the reciprocating section if the shafts are not parallel to each other and perpendicular to the belt travel.
- We recommend that the back bend idler have flanges or guides are placed along the belt edges between the idler sprockets and back bend roller or placed between the back bend roller and the drive sprockets.
- Surfaces on stationary guides that contact the belt edges should be made of UHMW-PE or acetal (POM).

Back Bend Roller

- Minimum diameter:
  - PC10
    - above 25°F (-4°C): 3.5″ (89 mm)
    - at or below 25°F (-4°C): 5″ (125 mm)
  - PC20
    - above 25°F (-4°C): min 6″ (150 mm)
    - at or below 25°F (-4°C): 10″ or 8″ (250 or 200 mm)
- Minimum flange heights:
  - PC10: 0.375″ (10 mm)
  - PC20: 0.500″ (13 mm)

Sprockets

- Minimum Drive and Idler Sprocket Diameters: see pages 10 and 25.
- Number of Drive and Idler Sprockets: on 3″ (76 mm) centers. This ensures even distribution of the belt load.

Tension

- Reciprocating conveyors work best with some pre-tension. Gates Mectrol Kevlar® reinforced belts are ideally suited for working under tension.
  - Tensioning Device (Take-Up): see page 35.

TROUGHED CONVEYORS

- Conveyor must be at least 5 feet long for troughing applications
- We only recommend using CenterClean for troughing applications.
- The belt needs to be pre-tensioned to trough and transmit torque properly. This requires that the conveyor have a tensioning device. A quick tensioning system is recommended.

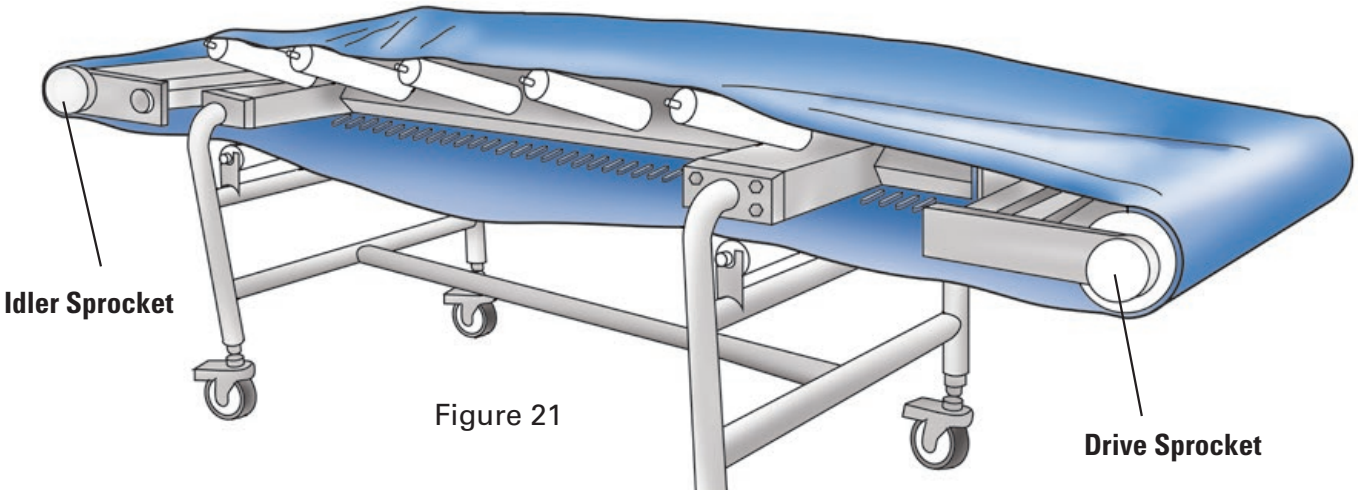


Figure 21

Food Belt Conveyor Design Guidelines

Carryway Support

- The center of the belt, in the area of the teeth, must be firmly supported with a slider bed or support rails on either side of the belt teeth. Slider bed and support rails should be made of UHMW-PE or acetal (POM).
- The center of the belt on either side of the belt teeth must be supported.
- Support rollers are recommended to reduce the belt drag, particularly in dry applications. Support roller options include 2 angled rollers ('rabbit ears') with UHMW-PE center support rails, see Figure 22. We do not recommend 2 angle rollers without any center support, see Figure 23

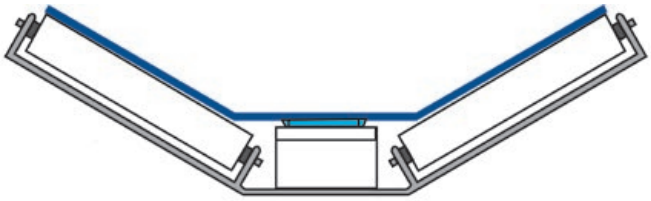


Figure 22

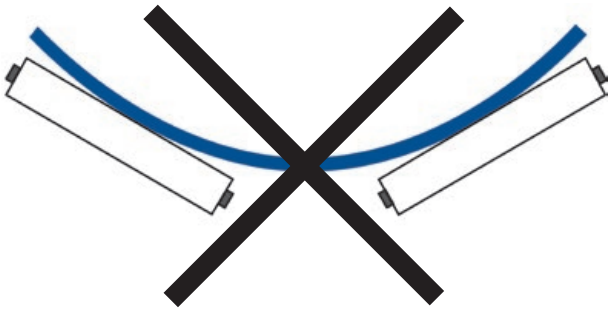


Figure 23

- Minimum Roller Diameter: 4" (100 mm)
- Roller length: extend beyond the belt edges
- Typical spacing of roller shafts: 16" – 28" (406 – 711 mm)
- Guidelines for transitioning the belt from flat to trough shape see Transition Length section below.

- Support rails can be used for wet applications but the belt contact surfaces must be made of UHMW-PE or acetal (POM). Rails with round belt contact surfaces are not recommended.
  - Rail faces must be tangent or conform to trough shape to minimize belt abrasion. Figure 24 shows a support rail that pivots to conform to the trough shape. Figure 25 shows rail surfaces tangent to the troughing belt.

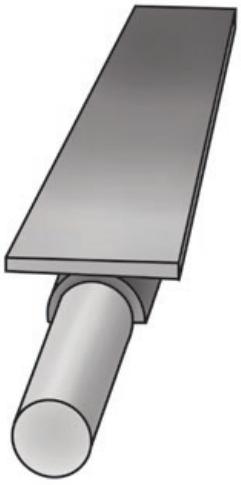


Figure 24

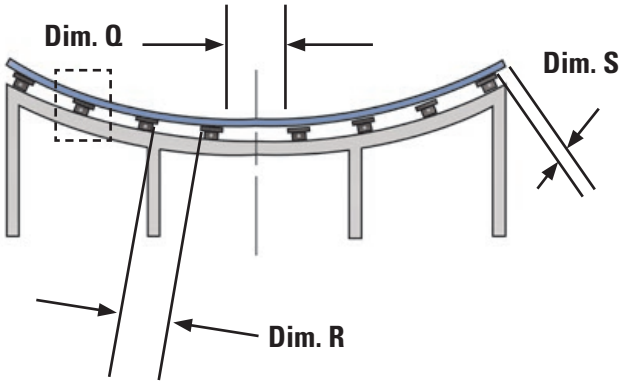


Figure 25

Food Belt Conveyor Design Guidelines

- Rail width, minimum: 1.25" (32 mm)
- Spacing, see Figure 25.
  - Distance between rails guiding belt teeth 3.15" (80.0 mm), Dim. Q.
  - Distance between rails not guiding belt teeth 3" – 4" (75 – 100 mm), Dim. R.
  - Distance from belt edge to outer rail 0.5" – 1" (15 – 25 mm), Dim. S.
- Guidelines for transitioning the belt from flat to trough shape see Transition Length section below.

Transition Length (L) – distance for transitioning the belt from flat to trough shape, typically between the pulleys (drive/idler) and the beginning of the trough.

- Minimum transition length for a given trough (β) is:

$$L = T_c \times W$$

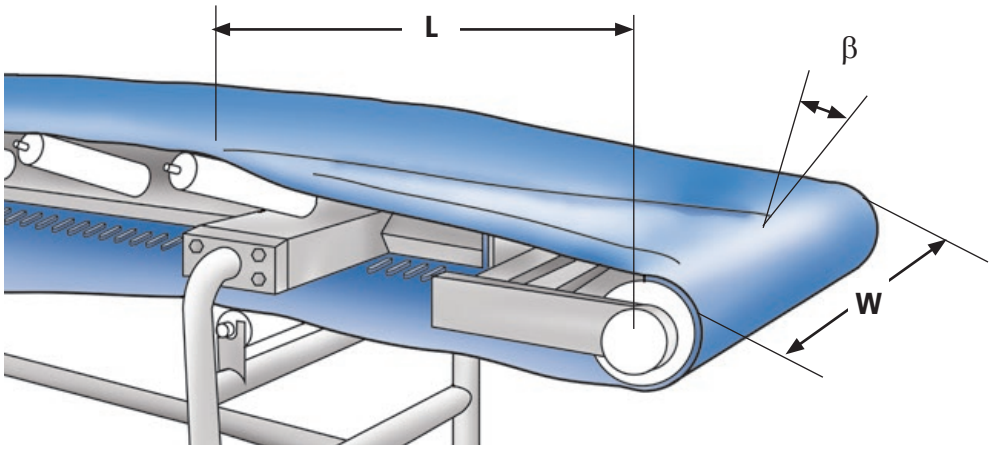


Figure 26

- Where W = Belt Width
- Tc = Troughing Constant
- β = Troughing Angle

Troughing Angle β	10° - 20°	>20° - 40°
Troughing Constant T_c	1.5	2

Table 1

Note: Maximum recommended trough angle: (β) 40°.

Belt Width

- Widths less than 12" (300 mm) are not recommended because they will not easily form the trough shape.
- Widths less than 20" (500 mm) will not easily trough more than 30° per side (see trough angle β in Figure 26).

Returnway Support

- See Basic Straight Line Conveyor page 33.

Food Belt Conveyor Design Guidelines

Pulleys

- At least 80% of the belt width must be directly supported by the driver and idler pulley assemblies, because of the high tension in the belt sides and edges that result from troughing.
  - One piece full width pulleys that fully support the belt edges (see Figure 27) are ideal for these applications.
  - Pulley assemblies with individual support rollers and drive/idler pulley (see Figure 28) can also be used.
    - The outer support rollers must support the belt edges.
    - The sum of the roller and pulley widths for a pulley assembly must be 80% or more of the belt width.

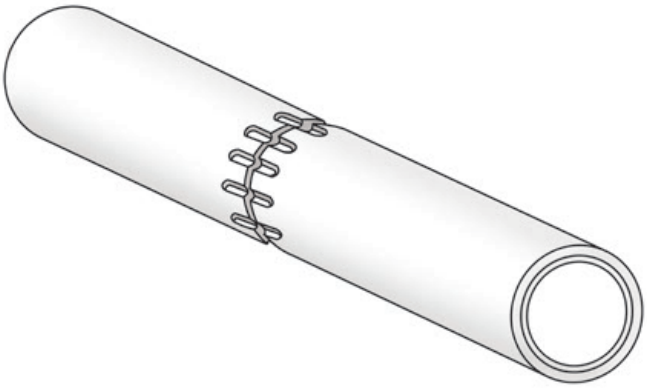


Figure 27

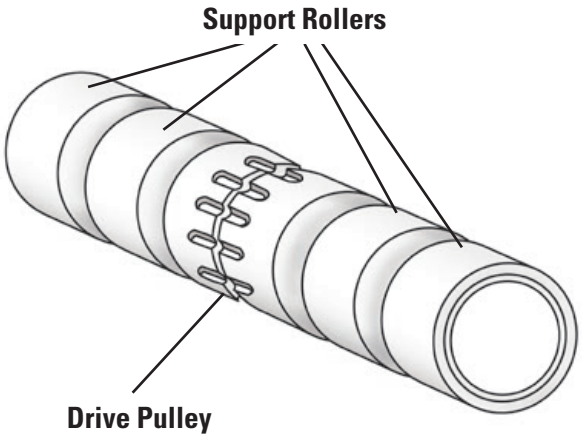


Figure 28

Food Belt Support Materials

Food Belt Installation Checklist

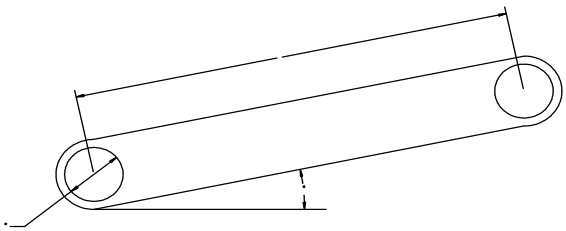
Food Belt Installation Checklist

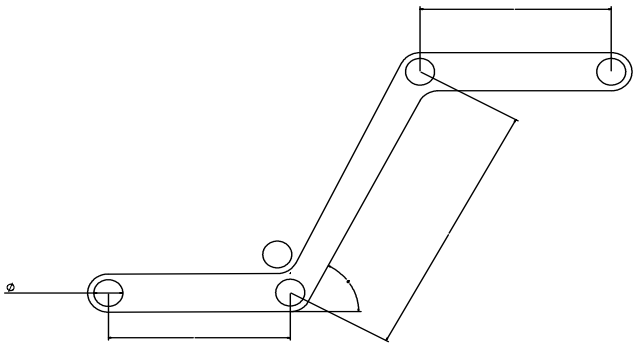
Application Surveyor		
Name:		Phone:
Company Name:		Email:
Site Location		
Name:		
Address:		
Application		
Briefly describe what is being conveyed, what type of belt is being replaced and why a Gates Mectrol belt has been selected. Conveyor Speed (FPM) Product Weight		
Environmental		
Temperature Range	_____° to _____°	
Product Temp (Degrees F or C)		
Wet or Dry Application		
Chemical Resistance Concerns		
Abrasives	Yes or No	
	Input	**Comments**
Belt		
Belt Type (FC9IPR, FC9IPT, FC12, FC12IP, PC10, PC20, CC40)		
Conveyor Frame Width To Accept Belt		
Belt Width (inches/mm)		
Belt Length (inches/mm)		
Splice Type		
Mechanical (e.g. RS, APF, PosiLace)		
Finger Weld		
Butt Weld		
Catenary Sag Present	Yes or No	
How Much		
Straight Cleats / If So What And Where	Yes or No	
Height (5mm thick only avail.)	0.25", 0.5", 0.75", 1", 1.5", 2", 3", 4"	
Spacing		
Offset From Edge (inches/mm)		
Scoop Cleats (7 mm thick)	Yes or No	
Overall Height	3.5", 4", 5"	
Spacing		
Sidewalls	Yes or No	
Height (inches/mm)	1.4" to 4.3"	
Offset From Edge (inches/mm)		
V-Guide	Yes or No	
What Type	K6, K8, K13, A, B, C	
Location In Width (inches/mm)		
Other Belt Features		
Ground Teeth (Field welded belts with ground teeth require special tooling)	Yes or No	
As Specified		
Sprockets		
Replacing existing sprockets?		
# of Sprockets		
Bore Type (Round or Square)	R or S	
Square Dimension (inches/mm)		
Round Dimension (inches/mm)		
Keyway Dimension (inches/mm)		
Number of Teeth or diameter		
Face Width (inches/mm)		
Any Back Idlers	Yes or No	
Diameter of Back Bend (in/mm)		
Smallest In Conveyor (inches/mm)		
Drum Motor / Motorized Pulley	Yes or No	

Food Belt Installation Checklist

Food Belt Installation Checklist

	Input	Comments
Conveyor		
OEM / Check Nameplate		
Bed Type (Wear Strip,Slider Bed, or Roller)		
Wear Strips		
Number Across Conveyor Width		
Spacing		
Pattern (parallel, chevron)		
Material		
Slider Bed		
Dimensions (inches/mm)		
Material		
Roller		
Number of Rollers		
Spacing of Rollers		
Returnway(wear strip, rollers, stationary bar)		
How is belt guided		
Conveyor Sidewalls/Fenders -height		
Troughing		
Side Wear Strips	Yes or No	
Drivetype / Head / Tail / Center		
Backbend Diameter, (inches/mm)	Yes or No	
Total Load On Belt (lbs.)		
Conveying What :		
Inclined		
Angle of Incline		
Z Conveyor Transition Guide	Shoe or roller	
Guide Material		
Angle of Belt Wrap On Drive Pulley		
Tensioning Device (Take Up) Avail.	Yes or No	
Type		
Total Travel		
Extended Distance When Center Distance Was Measured		
Installation		
Who Will Do Installation?		
Power Available:	1 Ø 115VAC / 20A min.; 1 Ø 230VAC / 16A min.; 3 Ø 230VAC / 8A min.; 3 Ø 460VAC / 8A min.	
Note: Extension Cord Max. Length is 50'		
Where Will Field Welder Be Placed?		
Is Conveyor Difficult to Access?	Yes or No	
Additional Information / Conveyor Sketch		





GATES MECTROL, INC.
9 Northwestern Drive
Salem, NH 03079, U.S.A.
Tel. +1 (603) 890-1515
Tel. +1 (800) 394-4844
Fax +1 (603) 890-1616

Application Engineering: Tel. +1 (800) 505-8494
email: apps@gatesmectrol.com

www.gatesmectrol.com

GM_Food Belt_Checklist_10-2014

Food Belt Certifications

CERTIFICATES

- FDA compliance for wet food contact requirements 21CFR177.2600
- USDA certificate for hygiene requirements for meat and poultry processing equipment
- USDA certificate for dairy equipment
- EU compliance

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:
Gates Mectrol
9 Northwestern Drive
Salem, New Hampshire 03079

Model Designation:
Belting Material
FlatClean®
FC9IP, FC12, and FC12IP

July 16, 2014
Date of Issuance

July 15, 2019
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

NSF/ANSI/3-A 14159-3 - 2010 Hygiene Requirements for the Design of Belt Conveyors Used in Meat ans Poultry Processing

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:
Gates Mectrol
9 Northwestern Drive
Salem, New Hampshire 03079

Model Designation:
Belting Material
FlatClean®
FC9IP, FC12, and FC12IP

April 21, 2014
Date of Issuance

April 20, 2019
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

USDA Dairy Equipment Guidelines

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:
Gates Mectrol
9 Northwestern Drive
Salem, New Hampshire 03079

Model Designation:
Belting Material
PosiClean & FC12

July 12, 2007
Date of Issuance

July 11, 2020
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

USDA Dairy Equipment Guidelines

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:
Gates Mectrol
9 Northwestern Drive
Salem, New Hampshire 03079

Model Designation:
Belting Material
PosiClean®,PC10 and PosiClean®,PC20

August 4, 2015
Date of Issuance

August 5, 2020
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

USDA Dairy Equipment Guidelines

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:

Gates Mectrol
9 Northwestern Drive
Salem, New Hampshire 03079

Model Designation:

Belting Material
CenterClean® and PosiClean® (designations PC10 & PC20)

April 22, 2015
Date of Issuance

April 21 2019
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

NSF/ANSI/3-A 14159-3 - 2010 Hygiene Requirements for the Design of Belt Conveyors Used in Meat ans Poultry Processing

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:

Gates Mectrol
9 Northwestern Drive
Salem, New Hampshire 03079

Model Designation:

Belting Material
CenterClean® 40 and PosiLace®

September 17, 2015
Date of Issuance

September 18, 2020
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

USDA Dairy Equipment Guidelines, June 2001

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:

Gates Mectrol
9 Northwestern Drive
Salem, New Hampshire 03079

Model Designation:

Belting Material
Posilace®

April 21, 2015
Date of Issuance

April 20, 2019
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

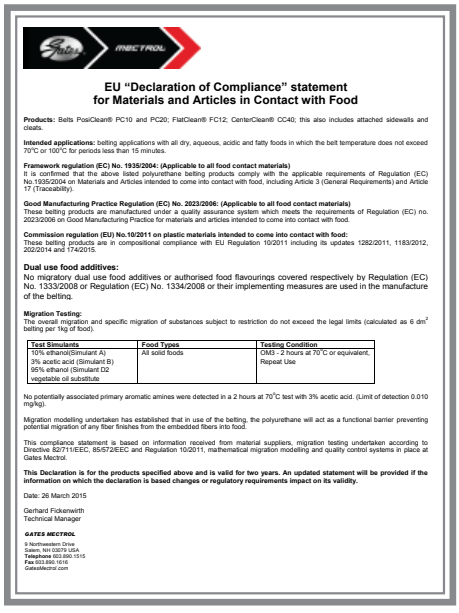
The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

NSF/ANSI/3-A 14159-3 - 2010 Hygiene Requirements for the Design of Belt Conveyors Used in Meat ans Poultry Processing

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.



EU "Declaration of Compliance" statement for Materials and Articles in Contact with Food

Products: Belts PosiClean® PC10 and PC20; FlatClean® FC12; CenterClean® CC40; this also includes attached sidewalls and cleats.

Intended applications: belting applications with all dry, aqueous, acidic and fatty foods in which the belt temperature does not exceed 70°C or 100°C for periods less than 15 minutes.

Framework regulation (EC) No. 1935/2004: (Applicable to all food contact materials)
It is confirmed that the above listed polyurethane belting products comply with the applicable requirements of Regulation (EC) No.1935/2004 on Materials and Articles intended to come into contact with food, including Article 3 (General Requirements) and Article 17 (Traceability).

Good Manufacturing Practice Regulation (EC) No. 2023/2006: (Applicable to all food contact materials)
These belting products are manufactured under a quality assurance system which meets the requirements of Regulation (EC) no. 2023/2006 on Good Manufacturing Practice for materials and articles intended to come into contact with food.

Commission regulation (EU) No.10/2011 on plastic materials intended to come into contact with food:
These belting products are in compositional compliance with EU Regulation 10/2011 including its updates 1282/2011, 1183/2012, 202/2014 and 174/2015.

Dual use food additives:
No migratory dual use food additives or authorised food flavourings covered respectively by Regulation (EC) No. 1333/2008 or Regulation (EC) No. 1334/2008 or their implementing measures are used in the manufacture of the belting.

Migration Testing:
The overall migration and specific migration of substances subject to restriction do not exceed the legal limits (calculated as 6 dm^2 belting per 1kg of food).

Test Simulants	Food Types	Testing Condition
10% ethanol(Simulant A) 3% acetic acid (Simulant B) 95% ethanol (Simulant D2 vegetable oil substitute	All solid foods	OM3 - 2 hours at 70°C or equivalent; Repeat Use

No potentially associated primary aromatic amines were detected in a 2 hours at 70°C test with 3% acetic acid. (Limit of detection 0.010 mg/kg).

Migration modelling undertaken has established that in use of the belting, the polyurethane will act as a functional barrier preventing potential migration of any fiber finishes from the embedded fibers into food.

This compliance statement is based on information received from material suppliers, migration testing undertaken according to Directive 82/711/EEC, 85/572/EEC and Regulation 10/2011, mathematical migration modelling and quality control systems in place at Gates Mectrol.

This Declaration is for the products specified above and is valid for two years. An updated statement will be provided if the information on which the declaration is based changes or regulatory requirements impact on its validity.

Date: 26 March 2015

Gerhard Fickenwirth
Technical Manager

GATES MECTROL
9 Northwestern Drive
Salem, NH 03079 USA
Telephone 603.890.1015
Fax 603.890.1616
GatesMectrol.com

Food Belt Sanitation

BELT SANITATION

Gates Mectrol food conveyor belting is designed to be easy to clean and specifically for Clean-in-Place sanitation procedures. It does not require soaking and immersion to achieve proper sanitation levels. In order to achieve maximum belt life, immersion in chemical solution for sanitation is not recommended.

Recommended Sanitation Procedures

1. Remove large food residues by mechanical means (scraper/brushes etc.)
2. Rinse conveyor with hot water to further remove food soils, preferably belt is not under tension
    - Approximately 60°C/140°F (avoid boiling water for safety and belt life)
    - Note: high water pressure may atomize water and make pathogens airborne
3. Apply cleaning detergent to the conveyor and belt
    - Usually alkaline/surfactant combination
4. Rinse conveyor with hot water (approximately 60°C/140°F)
    - Note: high water pressure may atomize water and make pathogens airborne
5. Apply sanitizer (germicide) to reduce microorganisms to safe level
6. Rinse with water if necessary
    - Dependent on sanitizer toxicity level

Common Sanitizing Chemicals

- *Sodium hyperchlorite (bleach)* is a common sanitizer used in the food processing industry. It attacks all families of thermoplastic polyurethane to some degree. In order to maximize belt life, the time that the bleach solution resides on the belt should be minimized and the solution should be at room temperature. Gates Mectrol belt jackets are made of polyether based thermoplastic polyurethane (TPU). This family of TPUs are more resistant to attack by the typical chemicals used in the food industry including sodium hypochlorite than the commonly used poly*ester* based thermoplastic polyurethanes.

    - Guidelines for Use of Sodium Hypochlorite on Gates Mectrol Food Conveyor Belting

    - Maximum concentration level: 2,000 ppm of available chlorine

    Note: If concentration levels exceed 200 ppm of available chlorine, the belt must be rinsed with potable water after the application of the sodium hypochlorite per US Government regulations 21 CFR Part 178.

    - Maximum residence time on belt for contraction levels exceeding 200 ppm : 20 minutes
    - Maximum solution temperature: 90°F (32°C)

- *Sodium hydroxide (caustic soda)* is found in many cleaning/sanitizing solutions. Sodium hydroxide does not affect the jacket material (polyether based TPU) of Gates Mectrol's food belting.

- *Quaternary ammonium compound (Quats)* is a common sanitizer in the food industry. This sanitizer does not attack Gates Mectrol's food belting.

Food Belt Chemical Resistance

CHEMICAL RESISTANCE CHART

This chart is only provided as a general guide and not a qualified guarantee of chemical compatibility. The chemical resistance on Gates Mectrol belts can be affected by chemical concentration, contact longevity and food contact / environmental temperature. Gates Mectrol food conveyor belting does not require soaking and immersion to achieve proper sanitation levels. Immersion in chemical solution for sanitation is not recommended for our food conveyor belting in order to achieve maximum belt life. Our belting is designed for Clean-In-Place sanitation.

Food Conveyor Belting Chemical Resistance

PRODUCT/CHEMICAL	Excellent	Good	Limited	Not Recommended
Acetic Acid				X
20% Acetic Acid			X	
3% Acetic Acid	X			
Acetic Anhydride				X
Acetone				X
Acetylene	X			
Aluminum Chloride	X			
Aluminum Sulphate	X			
Ammonium Carbonate	X			
Ammonium Chloride		X		
Ammonium Hydroxide		X		
Ammonium Nitrate	X			
Ammonium Nitrite	X			
Ammonium Phosphate	X			
Ammonium Sulphate	X			
Ammonium Sulfide	X			
Amyl Acetate				X
Amyl Alcohol	X			
Anline				X
Animal Oils & Fats	X			
Barium Chloride	X			
Barium Hydroxide	X			
Barium Sulfide	X			

Food Belt Chemical Resistance

Food Conveyor Belting Chemical Resistance

PRODUCT/CHEMICAL	Excellent	Good	Limited	Not Recommended
Beer	X			
Beet Sugar Liquors	X			
Benzene			X	
0.5% Bleach (sodium hypochlorite)		X		
Borax	X			
Boric Acid	X			
Brake Fluid			X	
Butter	X			
Butyl Acetate				X
Calcium Bisulfite				X
Calcium Chloride	X			
Calcium Hydroxide	X			
5% Calcium Hypochlorite	X			
Calcium Nitrate	X			
Calcium Sulfide	X			
Caliche (Sodium Nitrate)				X
Cane Sugar	X			
Carbon Bisulfide		X		
Carbon Dioxide	X			
Carbon Monoxide	X			
Carbon Tetrachloride		X		
Castor Oil	X			
10% Caustic Soda (Sodium Hydroxide)	X			
Cheese	X			
Chlorine Gas, Dry				X
Chlorine Gas, Wet				X
Chloroacetic Acid				X
Chlorobenzene				X
Chromic Acid				X
Citric Acid	X			

Food Belt Chemical Resistance

Food Conveyor Belting Chemical Resistance

PRODUCT/CHEMICAL	Excellent	Good	Limited	Not Recommended
Coconut Oil	X			
Copper Chloride	X			
Copper Sulphate	X			
Corn Oil	X			
Cottonseed Oil				X
Cresol				X
Creosote		X		
Cyclohexane		X		
Cyclohexanone				X
Diathyl Ether		X		
Dimethyl Acetamide				X
Dimethyl Formamide				X
Dimethyl Sulphexide				X
Dioctyl Phthalate (DOP)	X			
Epichlorohydrin				X
Ethanol		X		
Ethyl Acetate				X
Ethyl Cellulose				X
Ethylene Chloride				X
Ethylene Dichloride				X
Ethylene Glycol	X			
Ethylene Oxide	X			
Ferric Chloride		X		
Ferric Sulphate		X		
Fertilizer		X		
Fish Oil	X			
Flour	X			
Fluosilicic Acid		X		

Food Belt Chemical Resistance

Food Conveyor Belting Chemical Resistance

PRODUCT/CHEMICAL	Excellent	Good	Limited	Not Recommended
40% Formaldehyde Solution		X		
Formic Acid				X
Fruit Acids	X			
Furfural			X	
Gasoline		X		
Glucose	X			
Glue	X			
Glycerine	X			
Hexane	X			
Hexanol	X			
Hydraulic Oils		X		
Hydrazine				X
Hydrocyanic Acid				X
Hydroflouric Acid, Anhydrous				X
Hydrogen	X			
Hydrogen Peroxide	X			
Hydrogen Sulphide		X		
Iodine				X
Isoctane	X			
Isopropyl Alcohol			X	
.5% Javelle Water (Bleach)		X		
Kerosene		X		
Lacquer Solvents				X
Lactic Acid	X			
Lard	X			

Food Belt Chemical Resistance

Food Conveyor Belting Chemical Resistance

PRODUCT/CHEMICAL	Excellent	Good	Limited	Not Recommended
Lineolic Acid		X		
Linseed Oil		X		
Lubricating Oils		X		
Magnesium Chloride	X			
Magnesium Hydroxide		X		
Magnesium Sulfate	X			
Meat & Bone Meal	X			
Methyl Alcohol (Methanol)			X	
Methyl Isobutyl Ketone			X	
Methyl Ethyl Ketone (MEK)				X
Methylene Chloride				X
Milk	X			
Mineral Oils	X			
Mineral Spirits			X	
Molasses	X			
Mustard	X			
Naphthalene			X	
20% Nitric Acid				X
3% Nitric Acid				X
Nut Oil	X			
Oils & Fats	X			
Oleic Acid	X			
Oleum				X
Olive Oil	X			
Oxalic Acid		X		
Ozone				X
Palm Kernel Oil	X			

Food Belt Chemical Resistance

Food Conveyor Belting Chemical Resistance

PRODUCT/CHEMICAL	Excellent	Good	Limited	Not Recommended
Palmitic Acid		X		
Peanut Oil	X			
Pentane	X			
Petroleum		X		
Phenol				X
Phosphoric Acid, Diluted	X			
20% Nitric Acid, 4% HF Pickling Solution				X
1% Nitric Acid, 4% HF Pickling Solution		X		
Potassium Chloride	X			
Potassium Dichromate		X		
Potassium Hydroxide		X		
Potassium Nitrate	X			
Potassium Sulphate	X			
Pyradine				X
SAE 10 Oil	X			
Salt Water	X			
3% Sodium Sulfite		X		
0.5% Sodium Hypochlorite		X		
10% Sodium Hydroxide (Caustic Soda)	X			
Soy Bean Oil	X			
15% Stannous Chloride		X		
Steam 100 - 110° C			X	
Stearic Acid	X			
Styrene				X
Sulphur Dioxide, Liquid				X
Sulphur Dioxide, Gas				X
20% Sulphuric Acid				X
3 % Sulphuric Acid		X		
Sulphurous Acid		X		
Sugar	X			

Food Belt Chemical Resistance

Food Conveyor Belting Chemical Resistance

PRODUCT/CHEMICAL	Excellent	Good	Limited	Not Recommended
10% Tannic Acid	X			
Tartaric Acid	X			
Tetrahydrofuran				X
Toluene			X	
Tomato Juice	X			
Tomatoes, Ketchup	X			
Tetrachloroethylene			X	
3% Triethanolamine		X		
Trisodium Phosphate	X			
Tung Oil	X			
Turpentine			X	
3% Urea	X			
Urine	X			
Vegetable Oils & Fats	X			
Vinegar	X			
Water 22°C to 70°C	X			
Water 100°C (212° F)			X	
Whiskey/Wine	X			
Xylene			X	
Zinc Chloride		X		
Zinc Sulphate		X		

Food Belt Safety Procedures

SAFETY POLICY

WARNING! Be Safe! Gates Mectrol belting is reliable when used safely and within Gates Mectrol application recommendations. However, there are specific USES THAT MUST BE AVOIDED due to the risk of serious injury or death. These prohibited misuses include:

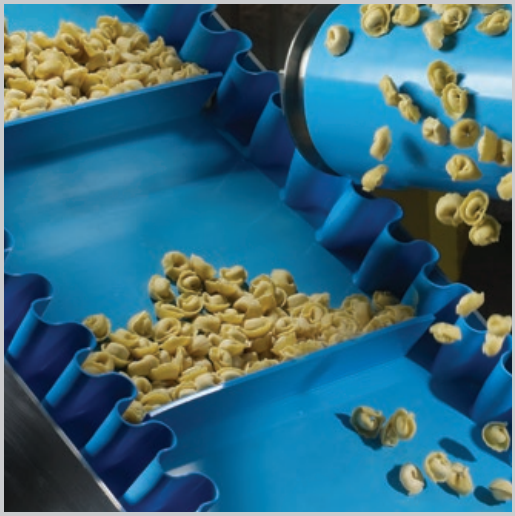
Lift Systems

Do not use Gates belts or pulleys in applications that depend solely upon the belt to raise/lower, support or sustain a mass without an independent safety backup system. Gates belt drives systems are not intended for use in applications requiring special "Lift" or "Proof" type chains with minimum tensile strength or certified/test tensile strength requirements.

Braking Systems

Do not use Gates belts or pulleys in applications that depend solely upon the belt to slow or stop a mass or to act as a brake without an independent safety backup system. Gates belt drive systems are not intended to function as a breaking device in "emergency stop" systems.

Notes



USA
CORPORATE HEADQUARTERS
Gates Mectrol Inc.
9 Northwestern Drive
Salem, NH 03079, U.S.A.
Tel. +1 (603) 890-1515
Tel. +1 (800) 394-4844
Fax +1 (603) 890-1616
email: contact@gatesmectrol.com

 GM_FCB_15_US