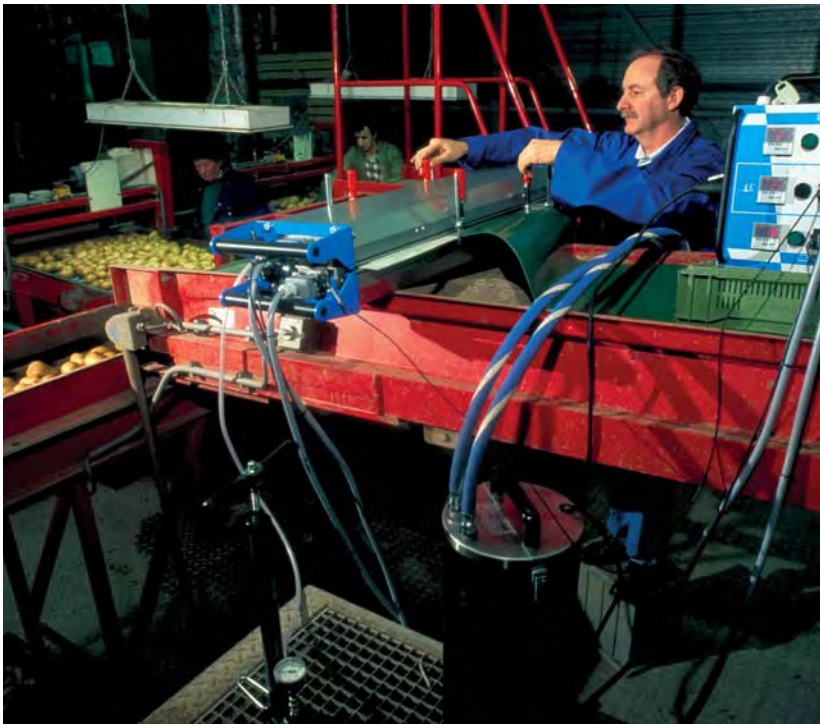
Conveyor Belt Technical Manual



Ammeraal Beltech

Innovation & Service in Belting

Conveyor Belt Technical Manual

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Ammeraal Beltech

CONVEYOR BELT SELECTION CHARTS

Food Handling

Ammeraal Beltech conveyor belting is designed to handle a variety of food processing applications.
The following charts list the belting that is preferred for each application.
Many more conveyor belts are available to fit these and other special situations.
Please refer to our product tearsheets or contact one of our representatives for additional information.

BAGELS

Application	Item #	Belt Name	Belt Designation	Comments
Forming	460662	2BX40	ES7/2 0+0 TEX PU WHITE	First choice. Simulates bare cotton but more sanitary.
Forming	4607105	3BX	ES9/3 0+0 PU WHITE	Second choice. More sanitary than bare cotton.
Forming	46066	2BX	ES6/2 0+0 PU WHITE	Third choice. More sanitary than bare cotton.
General purpose	46046	SP2C	EM8/2 00+02 PU AS	
General purpose	460361	3PCT	EC9/3 0+0 PU NATURAL	Good choice when bagel dough is moist.
General purpose	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	
Mini bagels	46066	2BX	ES6/2 0+0 PU WHITE	
Mini bagels	46050	2PCM	EC8/2 0+0 PU NATURAL	Extra absorbency.
Molder	4607105	3BX	ES9/3 0+0 PU WHITE	More sanitary than bare cotton.
Panner	460662	2BX40	ES7/2 0+0 TEX PU WHITE	Simulates bare cotton but more sanitary.
Panner	46066	2BX	ES6/2 0+0 PU WHITE	More sanitary than bare cotton.
Panner	40202	150FS	MPLY15/1 00+00 PVC BLK	
Slicer	400491	PTC2	ES4/2 01+P10 NTRF WHITE	Lematic or Alto equipment.
Slicer	40023	NRT3	EC9/3 01+P6 NTR D/BROWN	
Takeaway	46046	SP2C	EM8/2 00+02 PU AS	
Takeaway	400491	PTC2	ES4/2 01+P10 NTRF WHITE	
Takeaway	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	

BISCUITS, COOKIES & CRACKERS

Application	Item #	Belt Name	Belt Designation	Comments
Breaker	46078	1FB100	ES3.5/1 00+0 PU WHITE	
Breaker	460371	1PCT SP	EC3/1 0+02 PU WHITE	
Breaker	460501	1PCM	EC4/1 00+0 PU NATURAL	
Breaker	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Case incline	40023	NRT3	EC9/3 01+P6 NTR D/BROWN	
Case incline	47035	EM8/2 0+P8 PVCS HF AS BLUE	E120/2 0+P8 PVC ST(GT2)	
Cooling	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Cooling	46069	2F100	ES7/2 00+00 PU WHITE	
Cooling tunnel	46046	SP2C	EM8/2 00+02 PU AS WHITE	Good lateral rigidity.
Cooling tunnel	500171	SP2H	EM6/1 00+05 PU S AS White	Excellent release.
Cooling tunnel	50017	SP2	EM4/1 00+02 PU AS WHITE	Low stretch. Excellent release for chocolate.
Cooling tunnel	50036	MF2G	EM3/1 00+02 PU S AS WHITE	Thinnest 1-ply cooling tunnel belt. Do not allow to track off.
Cooling tunnel	460154	DS92C LIGHT GREEN	ES6/2 00+02 PU LIGHT GREEN	Good release.
Cutters	46015	DS92C	ES6/2 00+02 PU S WHITE	
Cutters	46023	SP2C-18AS	EM8/2 00+05 PU AS CLEAR	
Cutters	46036	2PCT	EC6/2 0+0 PU NATURAL	Rotary and reciprocating.
Cutters	46038	SP2F	EM8/2 00+00 PU AS WHITE	
Cutters	46046	SP2C	EM8/2 00+02 PU AS WHITE	
Cutters	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	Bare top is ideal for reciprocating cutters.
Dough	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Dough	46030	D92F	ES6/2 00+00 PU WHITE	Friction surface is good for dough transfer, rolling or cutting.
Dough	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	
Dough	46057	FEL2	EF3/2 00+0 PU FELT	Acts as a cushion with fragile products. Non-marking.
Dough	47125	E120/2 0+NP PVCF WHITE	EM8/2 00+P19 PVCF WHITE	High grip for dough handling.
Dough feed	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Dough feed	46016	DS93C	ES9/3 00+03 PU WHITE	
Dough feed	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	
Dough piece	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Dough piece	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Dough piece	46066	2BX	ES6/2 0+0 PU WHITE	Simulates bare cotton but more sanitary.
Gauge rollers	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Gauge rollers	46102	SP2F SI	EM8/2 00+00 PU SI AS Off WHITE	
Gauge rollers	43330	FMW-3.0(Volta)	FMW-3.0 (Volta)	
General purpose	46015	DS92C	ES6/2 00+0 PU DP WHITE	
General purpose	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	
General purpose	43360	FMW-3.0 IT (Volta)	FMW-3.0 IT (Volta)	
General purpose	40200	165B	MPLY12/1 00+06 PVC BLACK	Oil, grease & water resistant.
Incline/decline	460624	SL20	EM8/2 00+04 PU SI AS CREAM	High tack surface.
Laminator	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Laminator	46102	SP2F SI	EM8/2 00+00 PU SI AS Off WHITE	
Laminator	43330	FMW-3.0(Volta)	FMW-3.0 (Volta)	
Metal detector	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Metal detector	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	
Metal detector	50036	MF2G	EM3/1 00+02 PU S AS WHITE	Do not allow to track off.
Molders	460501	1PCM	EC4/1 00+0 PU NATURAL	Rotary cookie molder.
Molders	460503	1PCX	EC4/1 00+0 PU NAT TEX	Rotary cookie molder.
Packaging	46015	DS92C	ES6/2 00+02 PU S WHITE	
Palletizer	40023	NRT3	EC9/3 01+P6 NTR D/BROWN	
Pan on	460503	1PCX	EC4/1 00+0 PU NAT TEX	
Pan on & off	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Sheeter	46031	D93F	ES9/3 00+00 PU WHITE	Moline & Anets equipment.
Sheeter	46038	SP2F	EM8/2 00+00 PU AS WHITE	Low stretch. Finger splice option to rubber friction surface.
Sheeter	46062	SL20	ES6/2 00+04 PU SI CREAM	High tack surface. Good release.
Sheeter	460381	EM12/2 0+00 LN PU AS GRAY	EM12/2 0+00 LN PU AS GRAY	Low stretch. Low noise.
Sheeter	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Stacker	46069	2F100	ES7/2 00+00 PU WHITE	
Transfer	500171	SP2H	EM6/1 00+05 PU S AS White	
Transfer	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Trough	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Trough	46079	2C112	ES7/2 00+03 PU WHITE	Very flexible. Longer trough conveyors.
Trough	400172	DS153C	ES12/3 01+11 NTR F WHITE	
Turntable	50017	SP2	EM4/1 00+02 PU AS WHITE	Low stretch. Excellent release for chocolate.

BREAD, CROISSANTS & ROLLS

Application	Item #	Belt Name	Belt Designation	Comments
AMF Pan-O-Mat	4607105	3BX	ES9/3 0+0 PU WHITE	More sanitary than cotton.
Cooling	46046	SP2C	EM8/2 00+02 PU AS	
Cooling	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Cooling	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	
Curling & stretch	46036	2PCT	EC6/2 0+0 PU NATURAL	
Curling & stretch	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	
Curling & stretch	40049	PTC2	EC4/2 01+P10 NTR F WHITE	
Cutters	47006	SP2FHASD	EM12/2 00+00 PU AS WHITE	Option to PVC & rubber.
Depanner	47888	ESM15/3 0+18 PVCF AS W	ESM15/3 0+18 PVCF AS W	Vacuum.
Divider dough drop	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	
Divider dough drop	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	
Dough	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Dough	46030	D92F	ES6/2 00+00 PU WHITE	Friction surface is good for dough transfer, rolling or cutting.
Dough	46057	FEL2	EF3/2 00+0 PU FELT	Acts as a cushion with fragile products. Non-marking.
Dough	47125	E120/2 0+NP PVCF WHITE	EM8/2 00+P19 PVCF WHITE	High grip for dough handling.
Dough	460361	3PCT	EC9/3 0+0 PU NATURAL	Good with moist dough.
Dough	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Dough	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	
General purpose	43220	FHW-2.0 (Volta)	FHW-2.0 (Volta)	
General purpose	43322	FMW-2.0 IT (Volta)	FMW-2.0 IT (Volta)	
Hot pan	40079	2BRT HT	ES16/2 00+P6 SB BLACK	Transfer and incline conveyor.
Hot pan	40202	150FS	MPLY15/1 00+00 PVC BLACK	
Hot pan	157254	NPF 40 HC Black	NPF 40 HC Black	
Metal detector	50017	SP2AS	EM4/1 00+02 PU AS WHITE	
Metal detector	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar. Finger, spiral or MD splice available.
Metal detector	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	MD splice available.
Molder	40022	HCT3	EC6/3 01+P10 NTR F WHITE	Winkler.
Molder	46053	2PCH	ECC6/2 0+0 PU NATURAL	
Molder	4607105	3BX	ES9/3 0+0 PU WHITE	More sanitary than cotton.
Pan	40200	165B	MPLY12/1 00+06 PVC BLACK	Oil, grease & water resistant.
Pan	47140	E120/2 0+25 G	EM10/2 0+25 NTR AS BLUE	Fedco pan washer. Pan pull & turn machines.
Panner	46053	2PCH	ECC6/2 0+0 PU NATURAL	
Panner	46066	2BX	ES6/2 0+0 PU WHITE	Simulates bare cotton but more sanitary.
Rounder	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	Incline to rounder. Use 7mm electrode cleats. Holds up well to oil. Excellent release.
Rounder	460361	3PCT	EC9/3 0+0 PU NATURAL	
Sheeter	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Sheeter	40049	PTC2	EC4/2 01+P10 NTR F WHITE	Rondo.
Sheeter	43158	FRLW-P1 (Volta)	FRLW-P1 (Volta)	Top sheeter.
Sheeter	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	Rondo.
Sheeter	46005	DS92FB	ES6/2 0+00 PU	
Sheeter	46053	2PCH	ECC6/2 0+0 PU NATURAL	
Sheeter	47006	SP2FHASD	EM12/2 00+00 PU AS WHITE	Option to PVC & rubber.
Stacker/unstacker	59038	LL06	LLO6	
Stacker/unstacker	43150	FRG-2.0 (Volta)	FRG-2.0 (Volta)	Holds up well to impact.
Transfer	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Transfer	46068	1F100	ES3.5/1 00+00 PU WHITE	
Trough	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Trough	46079	2C112	ES7/2 00+03 PU WHITE	Very flexible. Longer trough conveyors.
Turntable	50017	SP2	EM4/1 00+02 PU AS WHITE	Low stretch. Good release.

BUNS

Application	Item #	Belt Name	Belt Designation	Comments
AMF Pan-O-Mat	4607105	3BX	ES9/3 0+0 PU WHITE	More sanitary than cotton.
Cooling	46046	SP2C	EM8/2 00+02 PU AS WHITE	Good lateral rigidity. Excellent release. 2-ply.
Cooling	46023	SP2C18AS	EM8/2 00+05 PU AS CLEAR	Tough applications.
Cooling	50017	SP2	EM4/1 00+02 PU AS WHITE	Low stretch. Good release. 1-ply
Depanner	47888	ESM15/3 0+18 PVCF AS WHITE	ESM15/3 0+18 PVCF AS WHITE	Vacuum.
Depanner	40328	PYR3	ES9/3 01+P72 NTR F WHITE	Alto.
Dough	460722	2FB100DP	ES6/2 00+0 PU DP WHITE	
Dough	46030	D92F	ES6/2 00+00 PU WHITE	Friction surface is good for dough transfer, rolling or cutting.
Dough	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	
Dough	46057	FEL2	EF3/2 00+0 PU FELT	Acts as a cushion with fragile products. Non-marking.
Dough	47125	E120/2 0+NP PVCF WHITE	EM8/2 00+P19 PVCF WHITE	High grip for dough handling.
Metal detector	46046	SP2C	EM8/2 00+02 PU AS WHITE	2-ply.
Metal detector	50017	SP2	EM4/1 00+02 PU AS WHITE	1-ply.
Metal detector	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	
Model K	46023	SP2C18AS	EM8/2 00+05 PU AS CLEAR	First choice.
Model K	46016	DS93C	ES9/3 00+03 PU WHITE	Make-up tables for cake.
Model K	46046	SP2C	EM8/2 00+02 PU AS WHITE	Good lateral rigidity. Excellent release. Economical.
Pillow Pak	40018	DS152TC	ES6/2 01+01 NTR F TEF TAN	Good release. Do not subject to reverse bending.
Slicer	40023	NRT3	EC9/3 01+P6 NTR D/BROWN	Bun hold down.
Slicer	40327	PYR2	ES9/2 01+P72 NTR F WHITE	Alto.
Slicer	40328	PYR3	ES9/3 01+P72 NTR F WHITE	Lematic or Alto.
Slicer	47285	E120/2 0+P6 PU White	EM8/2 0+P7 PU WHITE	
Slicer	400511	N3VT	ES10/3 01+P74 NT BROWN	Bun hold down.
Transfer	46046	SP2C	EM8/2 00+02 PU AS WHITE	
Transfer	40079	2BRT HT	ES16/2 00+P6 SB BLACK	Hot pan.
Transfer	40200	165B	MPLY12/1 00+06 PVC BLACK	Pan.
Transfer	40202	150FS	MPLY15/1 00+00 PVC BLACK	Bun pan.
Turntable	50017	SP2	EM4/1 00+02 PU AS WHITE	Low stretch. Good release.

CANDY

Application	Item #	Belt Name	Belt Designation	Comments
Bar packaging	46046	SP2C	EM8/2 00+02 PU AS WHITE	
Bar packaging	46061	SL10	EF4/1 00+04 PU AS SI CREAM	Sapal & SIG equipment.
Bar packaging	500171	SP2H	EM6/1 00+05 PU S AS WHITE	Sapal & SIG equipment.
Bottomers	50014	SP1	EM4/1 00+00 PU GREEN	Most popular for the application.
Bottomers	50031	MF1	EM3/1 00+00 PU AS WHITE	Thinnest 1-ply belt. Do not allow to track off.
Cooling tunnel	50017	SP2	EM4/1 00+02 PU AS WHITE	Excellent release for chocolate. Most popular cooling tunnel belt.
Cooling tunnel	500171	SP2H	EM6/1 00+05 PU S AS WHITE	Low stretch & strong splice for long tunnels. Thick cover releases chocolate.
Cooling tunnel	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar. 2-ply.
Cooling tunnel	46046	SP2C	EM8/2 00+02 PU AS WHITE	Good lateral rigidity. 2-ply for heavy duty applications.
Cooling tunnel	50014	SP1	EM4/1 00+00 PU GREEN	Textured finish belt.
Cooling tunnel	50036	MF2G	EM3/1 00+02 PU S AS WHITE	Thinnest belt with cover.
Cooling tunnel	50044	PC4-4	ES3/1 00+04 PU AS WHITE	Maximum flexibility. Extra heavy cover.
Cooling tunnel	461021	SP1 SI	EM4/1 00+01 PU SI AS LIGHT GREEN	Excellent flexibility & release. 1-ply. Will handle hot product.
Depositor	460624	SL20	EM8/2 00+04 PU SI AS CREAM	High tack surface with good release. 2-ply.
Depositor	50014	SP1	EM4/1 00+00 PU GREEN	Low stretch.
Extruder	460624	SL20	EM8/2 00+04 PU SI AS CREAM	High tack surface with good release.
Extruder	46102	SP2F SI	EM8/2 00+00 PU SI AS OFF WHITE	
Extruder	50014	SP1	EM4/1 00+00 PU GREEN	Low stretch.
General purpose	46046	SP2C	EM8/2 00+02 PU AS WHITE	
General purpose	43155	FELW-2.0 IT (Volta)	FELW-2.0 (Volta)	
General purpose	43156	FRLW-2.0 (Volta)	FRLW-2.0 (Volta)	
General purpose	43158	FRLW-P1 (Volta)	FRLW-P1 (Volta)	
General purpose	43360	FMW-3.0 IT (Volta)	FMW-3.0 IT (Volta)	
Guillotine	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Incline/decline	460624	SL20	EM8/2 00+04 PU SI AS CREAM	High tack surface with good release.
Metal detector	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Metal detector	46046	SP2C	EM8/2 00+02 PU AS WHITE	
Packing table	46015	DS92C	ES6/2 00+02 PU S WHITE	
Packing table	46046	SP2C	EM8/2 00+02 PU AS WHITE	Good lateral rigidity.
Transfer	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Transfer	500171	SP2H	EM6/1 00+05 PU S AS WHITE	
Transfer	461021	SP1 SI	EM4/1 00+01 PU SI AS LT GRN	Excellent flexibility and release.
Trough	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Trough	46079	2C112	ES7/2 00+03 PU WHITE	Very flexible. Longer trough conveyors. Best for heavier loads.
Turntable	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Turntable	50017	SP2	EM4/1 00+02 PU AS WHITE	Excellent release for chocolate. Low stretch.
Turntable	50044	PC4-4	ES3/1 00+04 PU AS WHITE	

MEATS, FISH and POULTRY

Application	Item #	Belt Name	Belt Designation	Comments
Boning	43230	FHW-3.0 (Volta)	FHW-3.0 (Volta)	Use V-guide for tracking.
Boning	43240	FHW-4.0 (Volta)	FHW-4.0 (Volta)	Use with two C or D section V-guides on Sandvik equipment.
Boning		RAM416PE	RAM416PE	
General purpose		RAM416PE	RAM416PE	
General purpose	40016	DS152C	ES8/2 01+11 NTR F WHITE	
General purpose	40083	BV150	ES15/3 01+10 PVCF WHITE	
General purpose	40201	165W	MPLY12/1 00+06 PVC F WHITE	
General purpose	43250	FHW-5.0 (Volta)	FHW-5.0 (Volta)	
General purpose	46090	CC60	EM6/1 05+05 PU AS WHITE	Lightweight abrasive conditions.
General purpose	50014	SP1	EM4/1 00+00 PU GREEN	Low stretch.
Incline/decline	43330	FMW-3.0 (Volta)	FMW-3.0 (Volta)	Use with double electrode cleat.
Incline/decline	40066	GRT2	ES12/2 0+P6 NR L/TAN	Small & light items.
Incline/decline	43360	FMW-3.0 IT (Volta)	FMW-3.0 IT (Volta)	Carry frozen blocks of meat. Use 8mm cleats. Wieler & Wolfking equipment.
Metal detector	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	
Metal detector		RAM208PP35	RAM208PP35	
Pace line	43330	FMW-3.0 (Volta)	FMW-3.0 (Volta)	Use if boning done on side tray. Use with red VAR strips welded on belt.
Pace line	43230	FHW-3.0 (Volta)	FHW-3.0 (Volta)	Use if boning done on belt. Use with red VAR strips welded on belt.
Packaging		RAM416PE	RAM416PE	
Packaging	40021	RCT3	EC4/3 01+P5 NTR F WHITE	Used in meat packing. Good grip for packaged products.
Patty maker		RAM204PP26	RAM204PP26	
Patty maker	46046	SP2C	EM8/2 00+02 PU AS WHITE	
Patty maker	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	Formax. Use with VL-10 or -13 guide. Transfers meat away from machine.
Slicer	40082	BV100	ES10/2 01+10 PVCF WHITE	Poultry. Luthi equipment.
Takeaway	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	Normally used in trough conveyors.
Transport	43320	FMW-2.0 (Volta)	FMW-2.0 (Volta)	Holds up well to constant washdowns.
Transport	43360	FMW-3.0 IT (Volta)	FMW-3.0 IT (Volta)	Holds up well to constant washdowns.
Trough	46079	2C112	ES7/2 00+03 PU WHITE	Very flexible. Longer trough conveyors.
Trough	400172	DS153C	ES12/3 01+11 NTR F WHITE	Good release.

PRETZEL

Application	Item #	Belt Name	Belt Designation	Comments
Bag takeaway	40082	BV100	ES10/2 01+10 PVCF WHITE	
Cooling	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
General purpose	40082	BV100	ES10/2 01+10 PVCF WHITE	
Metal detector	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Metal detector	46046	SP2C	EM8/2 00+02 PU AS WHITE	
Proofer	46050	2PCM	EC8/2 0+0 PU NATURAL	
Proofer	46053	2PCH	ECC6/2 0+0 PU NATURAL	
Proofer	47103	E120/2 0+P2 PVCF	EM8/2 0+P13 PVCF WHITE	
Proofer	47109	EC8/2 0+0 PVC WHITE	EC8/2 0+0 PVC WHITE	
Transfer	46053	2PCH	ECC6/2 0+0 PU NATURAL	
Transfer	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Trough	46015	DS92C	ES6/2 00+02 PU S WHITE	Good on small nosebar.
Trough	46079	2C112	ES7/2 00+03 PU WHITE	Very flexible. Longer trough conveyors.

CONVEYOR BELT SELECTION CHARTS

Industrial Applications

Ammeraal Beltech conveyor belting is designed to handle a variety of industrial applications. The following charts list the belting that is preferred for each application. Many more conveyor belts are available to fit these and other special situations. Please refer to our product tearsheets or contact one of our representatives for additional information.

BATTERIES

Application	Item Number	Belt Name	Belt Designation	Comments
Final check	40243	120COS PVC	MPLY 12/1 00+06 PVC Black FR	SS alligator
Final check	Contact Office	RAM882T Series	RAM882T Series	
Incline/roller	40205	120FS	MPLY12/1 00+00 PVC Black	Case incline. Live roller. Laced.
Incline/roller	40200	165B	MPLY12/1 00+06 PVC Black	Case incline. Live roller. Laced.
Incline/roller	40062	BRT3	EC9/3 01+P6 SR Blue	Case incline. Live roller. Laced.
Incline/roller	40063	U3	ES10/3 01+P6 PU Orange	Case incline. Live roller. Laced.
Pasting	10830	613	613	6 ply woven cotton belting custom made for application.
Pasting	10918	818	818	8 ply woven cotton belting custom made for application.
Scrap return	40023	NRT3	EC9/3 01+P6 NTR D/Brown	Bonded & rivet B sect. cleats 1-1/2" from edges on 12" centers.

BUILDING PRODUCTS

Application	Item Number	Belt Name	Belt Designation	Comments
Brick & tile	157254	NPF 40 HC Black	NPF 40 HC Black	
Brick & tile	43430	FK-3 (Volta)	FK-3 (Volta)	Moderate product accumulation. Use guides if side loads.
Glass	43440	FK-4 (Volta)	FK-4 (Volta)	Gouged or cut belt can be easily repaired or spliced.
Gypsum	46032	D94F	ES12/4 00+00 PU White	Accelerator belt.
Gypsum	43430	FK-3 (Volta)	FK-3 (Volta)	
Lumber & veneers	157258	NPF60 Blue	NPF60 Blue	
Lumber & veneers	157254	NPF40 HC Black	NPF40 HC Black	
Plank transfer	43440	FK-4 (Volta)	FK-4 (Volta)	Wood floor planks.
Plank transfer	43444	FZ-4 IT (Volta)	FZ-4 IT (Volta)	
Plywood	476731	EM10/2 0+02 PU SOL AS GR (3M)	EM10/2 0+02 PU SOL AS GR (3M)	Flakeboard(OSB) & particleboard. Available up to 118" wide.
Plywood	43150	FRG-2 (Volta)	FRG-2 (Volta)	
Plywood	43532	FZ-3.2 (Volta)	FZ-3.2 (Volta)	
Sanding	40023	NRT3	EC9/3 01+P6 NTR D/Brown	
Sawmill	43430	FK-3 (Volta)	FK-3 (Volta)	High speed cut board takeaway. High abrasion.
Sawmill	43444	FZ-4 IT (Volta)	FZ-4 IT (Volta)	
Shingles	46091	CC60-2	EM8/2 05+05 PU AS White	
Shingles	43532	FZ-3.2 (Volta)	FZ-3.2 (Volta)	Transfer lines. Good oil resistance.
Shingles	157258	NPF 60 Blue	NPF 60 Blue	
Stone	48322	EM8/2 00+P25 PVCS LN AS Green	EM8/2 00+P25 PVCS LN AS Green	Marble, granite and similar products. Low noise.

CORRUGATED BOX

Application	Item Number	Belt Name	Belt Designation	Comments
Baler	40200	165B	MPLY12/1 00+06 OR Blk	
Baler	40208	COS200	MPLY32/1 00+20 PVC Black	
Beater	Contact Office	Volta RO Series	Volta RO Series	
Beater	Contact Office	Volta VOS Series	Volta VOS Series	
Bridge	460361	3PCT	ES9/3 0+0 PU Natural	Laced.
Bridge	4607105	3BX	ES9/3 0+0 PU White	Laced.
Bridge	157258	NPF60 Blue	NPF60 Blue	
Counter ejector	43453	FRL-3 (Volta)	FRL-3 (Volta)	
Counter ejector	40062	BRT3	EC9/3 01+P6 SR Blue	
Counter ejector	48031	EM15/3 0+30 PVCS HF AS Blue	EM15/3 0+30 PVCS HF AS Blue	No longitudinal seam.
Counter ejector	58114	GG06/R20 (Rapplon)	GG06/R20 (Rapplon)	
Downstacker	43453	FRL-3 (Volta)	FRL-3 (Volta)	
Downstacker	48301	EM8/2 0+05 PVC AS Green	EM8/2 0+05 PVC AS Green	
Downstacker	59046	LT 09 (Rapplon)	LT 09 (Rapplon)	Slitter drive belt with s.s. lacing.
Downstacker	40030	N4ST	EP10/4 00+0 NT Tan	Top corrugator delivery belt.
Downstacker	40002	N85F	EC10/5 01+01 NT Tan	
Elevator	157258	NPF60 Blue	NPF60 Blue	
Elevator	Contact Office	4-ply cotton	4-ply cotton	
Feeder	400172	DS153C	ES12/3 01+11 NTR F White	Suction
Flexo folder	48031	EM15/3 0+30 PVCS HF AS Blue	EM15/3 0+30 PVCS HF AS Blue	
Flexo folder	40062	BRT3	EC9/3 01+P6 SR Blue	
Flexo folder	47420	E135/3 0+40 NR Red	EF13/3 0+40 NR Red	Perforate for vacuum applications.
Flexo folder	40025	GRT3	EC10/3 01+P6 NR L/Tan	
Flexo folder	40063	U3	ES10/3 01+P6 CAR Orange	
Folder gluer	58012	GG04/R10 (Rapplon)	GG04/R10 (Rapplon)	International, Post or Tanabe. Carrier and feed belt.
Folder gluer	58114	GG06/R20 (Rapplon)	GG06/R20 (Rapplon)	International, Post or Tanabe. Carrier belt.
Hogger	40208	COS200	MPLY32/1 00+20 PVC Black	
Hogger	40203	150BCOS	MPLY15/1 00+06 PVC Black	
Hogger	40200	165B	MPLY12/1 00+06 PVC Black	
Live roller	40203	150BCOS	MPLY15/1 00+06 PVC Black	
Live roller	40200	165B	MPLY12/1 00+06 PVC Black	
Live roller	40202	150FS	MPLY15/1 00+00 PVC Black	Laced.
Pre-feed	40330	DT2	ES12/2 01+P70 SR Tan	Folder lift belt.
Pre-feed	40025	GRT3	EC10/3 01+P6 NR L/Tan	Folder lift or top belt.
Scrap	40200	165B	MPLY12/1 00+06 PVC Black	
Scrap	48301	EM8/2 0+05 PVC AS Green	EM8/2 0+05 PVC AS Green	
Scrap	40203	150BCOS	MPLY15/1 00+06 PVC Black	
Stackers	40070	2BRT	EF12/2 0+P6 SB Black	
Stackers	40066	GRT2	ES12/2 0+P6 NR L/Tan	
Stackers	40025	GRT3	EC10/3 01+P6 NR L/Tan	
Stackers	400172	DS153C	ES12/3 01+11 NTR F White	Suction feeder. Perforated.
Stackers	400511	N3VT	ES10/3 01+P74 SR Brown	
Stackers	46032	PTG20 (Rapplon)	ES12/4 00+00 PU White	Laced.
Strapper	58350	PTG20 (Rapplon)	PTG20 (Rapplon)	
Taper	40083	BV150	ES15/3 01+10 PVCF White	
Taper	400172	DS153C	ES12/3 01+11 NTR F White	
Understacker	58114	GG06/R20 (Rapplon)	GG06/R20 (Rapplon)	
Understacker	43453	FRL-3 (Volta)	FRL-3 (Volta)	
Understacker	58353	PTG40 (Rapplon)	PTG40 (Rapplon)	
Understacker	58035	TG40 (Rapplon)	TG40 (Rapplon)	

CONVEYOR BELT SELECTION CHARTS

Industrial Applications

FIBERGLASS

Application	Item Number	Belt Name	Belt Designation	Comments
Bagging	40330	DT2	ES12/2 01+P70 SB Tan	
Bagging	40066	GRT2	ES12/2 0+P6 NR L/Tan	
Bagging	40030	N4ST	EP10/4 00+0 NT TAN	
General purpose	47038	EM15/3 00+00 PU AS(PVC CR) Blue	EM15/3 00+00 PU AS(PVC CR) Blue	
General purpose	47127	EM8/2 0+P24 PVCS HF AS Blue	EM8/2 0+P24 PVCS HF AS Blue	
General purpose	43215	FHW-1.5 (Volta)	FHW-1.5 (Volta)	Carries cut fiberglass.
Hoodwall	47123	EF15/3 05+05 PVC AS Green	EF15/3 05+05 PVC AS Green	Smooth both sides. Bonded edge strip.
Hoodwall	40056	DS253C	EF16/3 01+16 NTR F WHITE	
Turn belt	40202	150FS	MPLY15/1 00+00 PVC Black	
Turn belt	40200	165B	MPLY12/1 00+06 PVC OR Blk	

MISCELLANEOUS INDUSTRIAL

Application	Item Number	Belt Name	Belt Designation	Comments
Accumulators	46043	SP93F	EM10/3 00+00 PU Lt Green	Abrasion resistant. Low friction.
Accumulators	40030	N4ST	EP10/1 00+0 NT Tan	Low friction top surface.
Accumulators	47006	SP2FHASD	EM12/2 00+00 PU AS	Anti-static.
Automotive	40202	150FS	MPLY15/1 00+00 PVC Black	Bulkhead welder conveyor. Stamping machine takeaway.
Automotive	43440	FK-4 (Volta)	FK-4 (Volta)	Windshield conveyor.
Automotive	43532	FZ-3.2 (Volta)	FZ-3.2 (Volta)	Track cover.
Automotive	157254	NPF 40 HC Black	NPF 40 HC Black	Carrying sharp parts. Non-marking.
Automotive	157258	NPF 60 Blue	NPF 60 Blue	Carrying sharp parts. Non-marking.
Bowling	58035	TG 40	TG 40	Bowling ball accelerator belt.
Bowling	40063	U3	ES10/3 01+P6 PU Orange	Urethane roughtop.
Checkout counter	48309	S2 53 PVCH Black	ES6/2 0+05 PVCH AS Black	Multi-purpose conveying.
Documents	157252	NPF 25 HC Black	NPF 25 HC Black	Low friction. Non-marking.
Documents	157254	NPF 40 HC Black	NPF 40 HC Black	Low friction. Non-marking.
Documents	157258	NPF 60 Blue	NPF 60 Blue	Low friction. Non-marking.
General purpose	40200	165B	MPLY12/1 00+06 PVC OR Blk	120COS Black PVC.
General purpose	40082	BV100	ES10/2 01+10 PVCF White	Economical, sanitary white belting.
General purpose	50040	EF8/1 00+05 PU AS White	EF8/1 00+05 PU AS White	Low stretch. Durable cover. White PU.
General purpose	40001	N83F	EC6/3 01+01 NTR Tan	Thin, flexible belt good for vacuum(perforated) belting.
General purpose	46061	SL10	EF4/1 00+04 PU AS Silicone Cream	High friction.Excellent release. Very flexible. Nosebars.
General purpose	46102	SP2F SI	EM8/2 00+01 PU SI AS Lt Green	Excellent release. Good for hot, sticky products.
Graphics	58002	GT04	GT04 (Rapplon)	High strength and low stretch.
Graphics	58019	GG04/R10S	GG04/R10S (Rapplon)	High strength and low stretch.
Heavy duty	46091	CC60-2	EM8/2 05+05 PU AS White	Excellent finger splice. White sanitary.
Heavy duty	40056	DS253C	EF16/3 01+16 NTR F White	Good for higher temperatures.
Heavy duty	47037	EM15/3 00+00 PU AS(PVC CR)Orange	EM15/3 00+00 PU AS(PVC CR)Orange	Abrasion and cold resistant. High speed roll-up doors.
Heavy duty	157254	NPF 40 HC Black	NPF 40 HC Black	Foundries.
Heavy duty	157258	NPF 60 Blue	NPF 60 Blue	Foundries.
Heavy duty	40203	150BCOS	MPLY15/1 00+06 PVC Black	
Incline/decline	40066	GRT2	ES12/2 0+P6 NR L/Tan	Soft roughtop great for small and light items.
Incline/decline	40330	DT2	ES12/2 01+P70 SB Tan	Diamond top.
Incline/decline	47125	EM8/2 00+P19 PVCF White	EM8/2 00+P19 PVCF White	
Incline/decline	40070	2BRT	EF12/2 0+P6 SB Black	Economical.
Inspection	47333	EF5/1 0+01 PU Transp	EF5/1 0+01 PU Transp	Translucent. Can backlight for product inspection.
Microwave	157253	NPF 25 FDA Beige	NPF 25 FDA Beige	Low friction. Non-marking.
Non-woven	157254	NPF 40 HC Black	NPF 40 HC Black	Low friction. Non-marking.
Paper	58145	GG4E	GG4E	Strong nylon core belt.
Paper	157252	NPF 25 HC Black	NPF 25 HC Black	Low friction. Non-marking.
Paper	157258	NPF 60 Blue	NPF 60 Blue	Low friction. Non-marking.
Pharmaceutical	157253	NPF 25 FDA Beige	NPF 25 FDA Beige	Low friction. Non-marking.
Tire plants	460361	3PCT	EC9/3 0+0 PU Natural	Good replacement for hot stock and water belts.
Tire plants	40045	HSW3	C18/3 01+0 NR Black	Woven cotton top surface.
Trough	46079	2C112	ES7/2 00+03 PU White	Very flexible. Sanitary.
Trough	46015	DS92C	ES6/2 00+02 PU White	
X-ray	157253	NPF 25 FDA Beige	NPF 25 FDA Beige	

LAUNDRY

Application	Item Number	Belt Name	Belt Designation	Comments
Folder	46036	2PCT	EC6/2 0+0 PU Natural	Folder infeed. Cotton top surface.
Folder	460722	2FB100	ES6/2 00+0 PU DP White	Folder infeed. Bare polyesther top surface.
General purpose	157252	NPF 25 HC Black	NPF 25 HC Black	Low friction. Non-marking.
General purpose	157254	NPF 40 HC Black	NPF 40 HC Black	Low friction. Non-marking.
Incline	40022	HCT3	EC6/3 01+P10 NTR F White	Incline to folder. Pebble top.
Incline	40023	NRT3	EC9/3 01+P6 NTR D/Brown	Incline to folder. Rough top.
Incline	40049	PTC2	EC4/2 01+P10 NTR F White	Incline to folder. Pebble top.
Takeaway	40050	HDR2	ES12/2 01+P6 SB Brown	From washer. Rough top.

CONVEYOR BELT SELECTION CHARTS

Industrial Applications

LOGISTICS

Application	Item Number	Belt Name	Belt Designation	Comments
Airports	157252	NPF 25 HC Black AS	NPF 25 HC Black AS	General-horizontal. Low friction. Non-marking.
Airports	157254	NPF 40 HC Black AS	NPF 40 HC Black AS	General-horizontal. Low friction. Non-marking.
Airports	Contact Office	EF10/2 0+10 PVC BLACK AS LN FR	EF10/2 0+10 PVC BLACK AS LN FR	Turn conveyor. Quiet operation. Flame retardant.
Airports	Contact Office	EF12/2 0+P18 PVC AS LN FR	EF12/2 0+P18 PVC AS LN FR	Turn conveyor. Merge. Quiet operation. Flame retardant.
Airports	Contact Office	EM10/2 0+P36 PVCS BLACK AS LN FR	EM10/2 0+P36 PVCS BLACK AS LN FR	Check-in. Quiet operation. Flame retardant.
Airports	Contact Office	EM10/2 0+P6 PVCS BLACK AS LN FR	EM10/2 0+P6 PVCS BLACK AS LN FR	Incline/decline. Quiet operation. Flame retardant.
Airports	Contact Office	EM12/2 0+10 PVCH BLACK AS LN FR	EM12/2 0+10 PVCH BLACK AS LN FR	Metering. Quiet operation. Flame retardant.
Airports	Contact Office	EM8/2 0+03 PU BLACK LN	EM8/2 0+03 PU BLACK LN	Metering. Quiet operation.
Airports	Contact Office	EM8/2 0+P24 PVCS BLACK AS LN FR	EM8/2 0+P24 PVCS BLACK AS LN FR	Merge. Quiet operation. Flame retardant.
Airports	Contact Office	EM8/2 0+P8 PVCS BLACK AS LN FR	EM8/2 0+P8 PVCS BLACK AS LN FR	Merge and incline/decline. Quiet operation. Flame retardant.
Airports	48322	EM8/2 00+P25 PVCS LN AS Green	EM8/2 00+P25 PVCS LN AS Green	Quiet operation.
Airports	157258	NPF 60 Blue	NPF 60 Blue	General-horizontal. Low friction. Non-marking.
Airports	40070	2BRT	EF12/2 0+P6 SB Black	General-incline.
Airports	40203	150BCOS	MPLY15/1 00+P6 PVC Black	General-horizontal.
Distribution	40070	2BRT	EF12/2 0+P6 SB Black	Inclines.
Distribution	40243	120 COS Black PVC	MPLY12/1 00+06 PVC Black FR	Flame retardant.
Distribution	40060	3TSG	EC10/3 01+P73 NR L/Tan	Inclines.
Distribution	Contact Office	EF10/2 0+P18 PU BLACK AS LN	EF10/2 0+P18 PU BLACK AS LN	Quiet operation.
Distribution	Contact Office	EF10/2 00+03 PU BLUE M2	EF10/2 00+03 PU BLUE M2	
Distribution	Contact Office	EF12/2 0+10 PVC BLUE LN	EF12/2 0+10 PVC BLUE LN	Quiet operation.
Distribution	Contact Office	EM12/2 0+10 PVCH BLACK AS LN FR	EM12/2 0+10 PVCH BLACK AS LN FR	Metering. Quiet operation. Flame retardant.
Distribution	Contact Office	EM6/2 00+02 PU BLUE M2 AS	EM6/2 00+02 PU BLUE M2 AS	
Distribution	Contact Office	EM8/2 0+03 PU BLACK LN	EM8/2 0+03 PU BLACK LN	Metering. Quiet operation.
Distribution	Contact Office	EM8/2 0+06 PVCH BLACK M2 AS LN	EM8/2 0+06 PVCH BLACK M2 AS LN	Quiet operation.
Distribution	Contact Office	EM8/2 0+P8 PVCS BLACK AS LN FR	EM8/2 0+P8 PVCS BLACK AS LN FR	Merge and incline/decline. Quiet operation. Flame retardant.
Distribution	48322	EM8/2 00+P25 PVCS LN AS Green	EM8/2 00+P25 PVCS LN AS Green	Quiet operation.
Distribution	58200	GG06/R (Rapplon)	GG06/R (Rapplon)	
Distribution	58233	GG09/R10 (Rapplon)	GG09/R10 (Rapplon)	
Distribution	Contact Office	MPLY10/1 0+P24 PVC CR BLACK	MPLY10/1 0+P24 PVC CR BLACK	
Distribution	Contact Office	MPLY10/1 00+10 PVC CR BLACK	MPLY10/1 00+10 PVC CR BLACK	
Distribution	157252	NPF 25 HC Black AS	NPF 25 HC Black AS	Low friction. Non-marking.
Distribution	157254	NPF 40 HC Black AS	NPF 40 HC Black AS	Low friction. Non-marking.
Distribution	157258	NPF 60 Blue	NPF 60 Blue	Low friction. Non-marking.
Distribution	43713	RPN-5 (Volta)	RPN-5 (Volta)	
Distribution	40200	165B	MPLY12/1 00+06 PVC OR Blk	
Distribution	40203	150BCOS	MPLY15/1 00+06 PVC Black	

NEWSPAPER

Application	Item Number	Belt Name	Belt Designation	Comments
Baler	40208	COS200	MPLY32/1 00+20 PVC Black	Economical.
Baler	40203	150BCOS	MPLY15/1 00+06 PVC Black	Economical.
Baler	40200	165B	MPLY12/1 00+00 PVC OR Blk	Economical.
Bender	47673	EM8/2 00+02 PU AS Green	EM8/2 00+02 PU AS Green	Plate room.
Bundle packer	40203	150BCOS	MPLY15/1 00+06 PVC Black	
Bundle packer	40002	N85F	EC10/5 01+01 NT Tan	Tan neoprene FS x FS.
Inserter	47105	EM8/2 0+P6 PVCS LN AS Green	EM8/2 0+P6 PVCS LN AS Green	Portable feed conveyor and plate room bender.
Inserter	47035	EM8/2 0+P8 PVCS HF AS Blue	EM8/2 0+P8 PVCS HF AS Blue	Portable feed conveyor.
Inserter	43713	RP-5 (Volta)	RP-5 (Volta)	Round PU belt.
Overflow	40205	120FS	MPLY12/1 00+00 PVC Black	
Overflow	58001	GT02	GT02 (Rapplon)	
Overflow	58350	PTG20	PTG20 (Rapplon)	Labeling conveyor.
Paper winder	58002	GT04	GT04 (Rapplon)	High strength nylon.
Paper winder	5812205	GG15.40RR	GG15.40RR (Rapplon)	High strength nylon.
Press	58012	GG04/R10	GG04/R10 (Rapplon)	High strength nylon.
Scale	47220	EM8/2 00+P1 PVCF White	EM8/2 00+P1 PVCF White	Inverted pyramid profile.
Stacker	58091	GG04	GG04(Rapplon)	Labeling conveyor.
Stacker	58001	GT02	GT02 (Rapplon)	
Stacker	58350	PTG20	PTG20 (Rapplon)	
Stitcher/trimmer	58091	GG04	GG04 (Rapplon)	
Stitcher/trimmer	58002	GT04	GT04 (Rapplon)	
Strapper	58350	PTG20	PTG20 (Rapplon)	
Strapper	58002	GT04	GT04 (Rapplon)	

PACKAGING

Application	Item Number	Belt Name	Belt Designation	Comments
Bagging	46005	DS92FB	ES6/2 0+00 PU White	Polyethylene bag machine.
Fragile products	46057	FEL2	EF3/2 00+0 PU Felt	Acts as a cushion with fragile products. Non-marking.
High grip	40021	RCT3	EC4/3 01+P5 NTR F WHITE	Good grip for packaged products.
Lightweight packages	47190	EF5/1 0+P19 PVCS Blue	EF5/1 0+P19 PVCS Blue	
Lightweight packages	46039	SP2FAAS	EM8/2 00+00 PU AAS Black	Anti-static.

PLASTICS

Application	Item Number	Belt Name	Belt Designation	Comments
Bottles	40056	DS253C	EF16/3 01+16 NTR F White	Bottle cap transfer belt.
Bottles	46005	DS92FB	ES6/2 0+00 PU White	Blow molded plastic bottle accumulator conveyor. Laced.
Elevator	43532	FZ-3.2 (Volta)	FZ-3.2 (Volta)	Paraffin elevator. Cleated belts.
Injection molding	460624	SL20	EM8/2 00+04 PU SI AS Cream	High tack surface. Good on inclines/declines.

RECYCLING

Application	Item Number	Belt Name	Belt Designation	Comments
Baler	40200	165B	MPLY12/1 00+00 PVC OR Blk	
Baler	40070	2BRT	EF12/2 0+P6 SB Black	Incline to baler.
Baler	40060	3TSG	EC10/3 01+P73 NR L/Tan	Incline to baler.
General purpose	40200	165B	MPLY12/1 00+00 PVC OR Blk	
General purpose	40208	COS200	MPLY32/1 00+20 PVC Black	Can & bottle applications. Heavy cover resists cuts & abrasion.

CONVEYOR BELT SELECTION CHARTS

Industrial Applications

TOBACCO

Application	Item Number	Belt Name	Belt Designation	Comments
Belt cover strips	Contact Office	EF3/1 0+02 PPA	EF3/1 0+02 PPA	Thermoplastic elastomer.
Belt cover strips	Contact Office	NWF 0+01 PE	NWF 0+01 PE	Polyethylene.
Cigarette machines	Contact Office	EM8/2 0+0 HY AS	EM8/2 0+0 HY AS	Spreaders.
Cigarette machines	Contact Office	ESM5/1 02+02 PE M2 AS	ESM5/1 02+02 PE M2 AS	Silos. Polyethylene.
Cigarette reservoirs	Contact Office	EM8/2 0+P7 HY AS	EM8/2 0+P7 HY AS	Hytrel.
Cigarette reservoirs	Contact Office	ESM10/2 0+P7 PPA AS	ESM10/2 0+P7 PPA AS	Thermoplastic elastomer.
Feeders	Contact Office	EMM12/3 0+045 HY M2	EMM12/3 0+045 HY M2	Used with rake strips or studs. Hytrel.
Feeders	Contact Office	ESM15/3 0+02 PE M2 AS	ESM15/3 0+02 PE M2 AS	Used with rake strips. Polyethylene.
Feeders	Contact Office	ESM15/3 0+P7 PE AS	ESM15/3 0+P7 PE AS	Polyethylene.
Final packing	58091	GG04 (Rapplon)	GG04 (Rapplon)	
Final packing	Contact Office	GP01 (Rapplon)	GP01 (Rapplon)	
Final packing	58055	SSB84 (Rapplon)	SSB84 (Rapplon)	
Final packing	58035	TG04 (Rapplon)	TG04 (Rapplon)	
Final packing	58054	TT04 (Rapplon)	TT04 (Rapplon)	
General purpose	47284	EM10/2 0+02 PE Clear	EM10/2 0+02 PE Clear	Stain resistant. Not for nosebar applications. Polyethylene.
General purpose	47283	ESM5/1 02+02 PE Trans	ESM5/1 02+02 PE Trans	Processing conveyors. Polyethylene.
Incline	Contact Office	ESM10/2 0+P21 PE AS	ESM10/2 0+P21 PE AS	Polyethylene.
Incline	Contact Office	ESM10/2 0+P27 PPA AS	ESM10/2 0+P27 PPA AS	Thermoplastic elastomer.
Incline	Contact Office	ESM15/3 0+P21 PE AS	ESM15/3 0+P21 PE AS	Severe inclines. Polyethylene.
Sorting drums	Contact Office	ESM15/3 0+P7 PE AS	ESM15/3 0+P7 PE AS	Polyethylene.
Transport/Storage	Contact Office	EM8/2 0+045 HY M2 AS	EM8/2 0+045 HY M2 AS	Low wear. Hytrel.
Transport/Storage	Contact Office	ESF10/2 P1+05 PE AS	ESF10/2 P1+05 PE AS	Polyethylene.
Transport/Storage	Contact Office	ESM10/2 0+05 PPA AS	ESM10/2 0+05 PPA AS	Thermoplastic elastomer.
Transport/Storage	Contact Office	ESM10/2 00+02 PE M2 AS	ESM10/2 00+02 PE M2 AS	Polyethylene.

TREADMILL

Application	Item Number	Belt Name	Belt Designation	Comments
Treadmill	47225	EM/F10/2 0+P33 PVC AS Black	EM/F10/2 0+P33 PVC AS Black	Low amp draw. Quiet operation.
Treadmill	47228	EM/F8/2 0+P33 PVCH AS Black	EM/F8/2 0+P33 PVCH AS Black	Low amp draw. Quiet operation.
Treadmill	47227	EM9/1 0+P33 PVCH AS LN Black	EM9/1 0+P33 PVCH AS LN Black	Low amp draw. Quiet operation.
Treadmill	47221	EM/F10/2 0+P33 G/432U Gray	EM/F10/2 0+P33 G/432U Gray	Low amp draw. Quiet operation.
Treadmill	47400	EM/C10/2 0+P22 PVC AS Black	EM/C10/2 0+P22 PVC AS Black	Low amp draw. Quiet operation.
Treadmill	48320	EM10/1 0+P10 PVCH AS Black	EM10/1 0+P10 PVCH AS Black	Low amp draw. Quiet operation.
Treadmill	48316	EM5/1 0+P10 PVCH AS Black	EM5/1 0+P10 PVCH AS Black	Low amp draw. Quiet operation.

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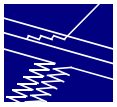
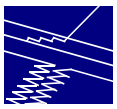
TECHNICAL DATA SHEET

Recommended Conveyor Belt Splices



Sorted by Item Number

Item Number	Belt Designation	Old Belt Designation	Splicing Instructions	Temp		Type		
				Hot	Cold	Finger	Step	Skive
24305	SGF-42 WHITE SILICONE GLASS		FS119	●			●	●
40001	EC6/3 01+01 NTR TAN	N83F	CS100		●		●	
40002	EC10/5 01+01 NTR TAN	N85F	CS100		●		●	
40004	EC12/5 01+01 NTR TAN	N155	CS100		●		●	
40008	EC8/3 01+04 NTR F WHITE	WB153F	CS100		●		●	
40010	EC4/2 01+08 NTR F WHITE	WB152C	CS100		●		●	
40011	EC8/3 01+08 NTR F WHITE	WB153C	CS100		●		●	
40014	EC8/3 01+08 NTR F BLACK	BB153C	CS100		●		●	
40016	ES8/2 01+11 NTR F WHITE	DS152C	CS100		●		●	
40017	ES12/3 01+11 NTR F WHITE	DS153C	CS100		●		●	
40018	ES6/2 01+01 NTR F TEF TAN	DS152TC	CS100		●		●	
40019	ES10/3 01+01 NTR F TEF TAN	DS153TC	CS100		●		●	
40021	EC4/3 01+P5 NTR F WHITE	RCT3	CS100		●		●	
40022	EC6/3 01+P10 NTR F WHITE	HCT3	CS100		●		●	
40023	EC9/3 01+P6 NTR D/BROWN	NRT3	CS100		●		●	
40025	EC10/3 01+P6 NR L/TAN	GRT3	CS100		●		●	
40030	EP10/4 00+0 NT TAN	N4ST	CS100		●		●	
40045	C18/3 01+0 NR BLACK	HSW3	CS100		●		●	
40047		HT2 BURTEK	CS100		●		●	
40049	EC4/2 01+P10 NTR F WHITE	PTC2	CS100		●		●	
40050	ES12/2 01+P6 SR BROWN	HDR2	CS100		●		●	
40051	ES10/3 01+P74 SR BROWN	N3VT	CS100		●		●	
40053	ES11/3 01+P71 NTRF WHITE	MC3	CS100		●		●	
40054	ES9/2 01+P71 NTR F WHITE	MC2	CS100		●		●	
40056	EF16/3 01+16 NTR F WHITE	DS253C	CS100		●		●	
40057	EC12/4 01+01 NT BLACK	N154B	CS100		●		●	
40060	EC10/3 01+P73 NR L/TAN	3TSG	CS100		●		●	
40061	EM15/2 0+P6 NTR BLUE	RT2	CS100		●		●	
40062	EC9/3 01+P6 SR BLUE	BRT3	CS100		●		●	
40063	ES10/3 01+P6 CAR ORANGE	U3	CS100		●		●	
40066	ES12/2 0+P6 NR L/TAN	GRT2	CS100		●		●	
40070	EF12/2 0+P6 SB BLACK	2BRT	CS100		●		●	
40079	ES16/2 00+P6 SB BLACK	2BRT HT	CS100		●		●	
40082	ES10/2 01+10 PVCF WHITE	BV100	FS205	●		●	●	
40083	ES15/3 01+10 PVCF WHITE	BV150	FS205	●		●	●	
40200	MPLY12/1 00+06 PVC BLACK	165B	FS210	●		●		●
40201	MPLY12/1 00+06 PVC F WHITE	165W	FS210	●		●		●
40202	MPLY15/1 00+00 PVC BLACK	150FS	FS211	●		●		●
40203	MPLY15/1 00+06 PVC BLACK	150BCOS	FS211	●		●		●
40205	MPLY12/1 00+00 PVC BLACK	120FS	FS211	●		●		●
40206	MPLY9/1 00+07 PVC F BLACK	90BC	FS210	●		●		●
40208	MPLY32/1 00+20 PVC BLACK	COS200	FS211	●		●		●
40217	MPLY12/1 01+P73	CT120	SPCL-PA			●		
40327	ES9/2 01+P72 NTR F WHITE	PYR2	CS100		●		●	
40328	ES9/3 01+P72 NTR F WHITE	PYR3	CS100		●		●	
40330	ES12/2 01+P70 SB TAN	DT2	CS100		●		●	
40331	ES12/2 01+P70 SB BLACK	DT2B	CS100		●		●	
40705	MPLY15/1 07+07 PVC BLACK	150CBS	FS211	●		●		●
40712		3TW BURTEK	CS100		●		●	
43310	ESM 6/2 0+04 PVCH AS BK M2		FS203	●		●	●	
46001	EM4/1 03+03 PU AS DARK BLUE	PU2	FS101	●		●		
46005	ES6/2 0+00 PU WHITE	DS92FB	FS111	●		●	●	
46012	ES6/2 00+02 PU AS WHITE	DS92CAS	FS103	●		●	●	
46014	ES6/2 00+03 PU BLUE	DS92C BLUE	FS103	●		●	●	
46015	ES6/2 00+02 PU S WHITE	DS92C	FS103	●		●	●	
46016	ES9/3 00+03 PU WHITE	DS93C	FS101	●		●	●	●
46018	ES6/2 00+02 PU HF BLACK	D92BC	FS103	●		●	●	
46023	EM8/2 00+05 PU AS CLEAR	SP2C18AS	FS101	●		●	●	
46030	ES6/2 00+00 PU WHITE	D92F	FS104	●		●	●	
46031	ES9/3 00+00 PU WHITE	D93F	FS212	●	●		●	●
46032	ES12/4 00+00 PU WHITE	D94F	FS212	●	●		●	●
46036	EC6/2 0+0 PU NATURAL	2PCT	FS107	●		●	●	●



Sorted by Item Number

Item Number	Belt Designation	Old Belt Designation	Splicing Instructions	Temp		Type		
				Hot	Cold	Finger	Step	Skive
46037	EC3/1 00+0 PU NATURAL	1PCT	FS109	●		●		
46038	EM8/2 00+00 PU AS WHITE	SP2F	FS104	●		●	●	
46039	EM8/2 00+00 PU AAS BLACK	SP2FAAS	FS104	●		●	●	
46043	EM10/3 00+00 PU LT GREEN	SP93F	FS212	●	●		●	●
46044	EM8/2 00+05 PU AS D GREEN	SP2C18AS GREEN	FS101	●		●		
46045	EM8/2 00+02 PU AS WHT TEX	2SP3	FS118	●		●		
46046	EM8/2 00+02 PU AS WHITE	SP2C	FS102	●		●	●	
46048	EM8/2 00+02 PU AS GREY	SP2GC	FS102	●		●	●	●
46050	EC8/2 0+0 PU NATURAL	2PCM	FS112	●		●	●	
46053	ECC6/2 0+0 PU NATURAL	2PCH	FS115	●		●	●	
46055	EM6/2 00+02 PU S WHITE	M2FC	FS102	●		●		
46057	EF3/2 00+0 PU FELT	FEL2	FS107	●		●	●	●
46061	EF4/1 00+04 PU AS SILICONE CREAM	SL10	FS108	●		●		
46062	ES6/2 00+04 PU SI CREAM	SL20 SPUN	FS114	●		●	●	
46066	ES6/2 0+0 PU WHITE	2BX	FS107	●		●	●	
46068	ES3.5/1 00+00 PU WHITE	1F100	FS106	●		●		
46069	ES7/2 00+00 PU WHITE	2F100	FS104	●		●	●	
46072	ES7/2 00+0 PU WHITE	2FB100	FS107	●		●	●	
46074	ES 14/4 00+00	4F100 POLYTEK	CS100		●		●	●
46078	ES3.5/1 00+0 PU WHITE	1FB100	FS109	●		●		
46079	ES7/2 00+03 PU WHITE	2C112	FS101	●		●	●	
46082	2-PLY POLYPROPYLENE	PP2	NONE				●	
46084	ES3/1 00+00 PU AS BLACK	1F100 AS	FS106	●		●		
46089	EM4/1 03+03 PU AS WHITE	CC40	FS101	●		●		
46090	EM6/1 05+05 PU AS WHITE	CC60	FS101	●		●		
46091	EM8/2 05+05 PU AS WHITE	CC60-2	FS101	●		●	●	
46102	EM8/2 00+01 PU SI AS LIGHT GREEN	SP2F SI	FS116	●		●	●	
46125	EMK 30/3 00+05 PU AS CLEAR		FS212				●	●
46146	EM8/2 00+02 PU AS LIGHT GREEN	SP2C LT GREEN	FS102	●		●	●	
46148	EM8/2 00+03 PU AS LIGHT BLUE	SP2C LT BLUE	FS102	●		●	●	
46350	EM8/2 00+04 PPA NATURAL		NONE	●		●		
47006	EM12/2 00+00 PU AS WHITE	SP2FHASD	FS104	●		●	●	
47007	EM8/2 P1+P6 PVC AS BLUE		FS200	●			●	
47008	EM5/1 0+05 SI WHITE	E60/1 0+05 SI	FS218	●		●		
47012	EM4/1 0+05 PVCF WHITE	E60/1 0+05 PVC WHITE	FS204	●		●		
47030	EM8/2 00+05 PVCF AS WHITE	E120/2 0+05 PVC WHITE	FS204	●			●	
47034	EM15/3 00+00 PU AS PVC CR AC BLUE		FS208	●		●	●	
47035	EM8/2 0+P8 PVCS HF AS BLUE	E120/2 0+P8 PVC ST(GT2)	FS202	●		●	●	
47037	EM15/3 00+00 PU AS (PVC CR)ORANGE		FS208	●		●	●	
47038	EM15/3 00+00 PU AS(PVC CR)BLUE		FS208	●		●	●	
47039	EM15/3 00+00 PU AS(PVC CR)BROWN		FS208	●		●	●	
47051	EM4/1 01+02 PVCH AS BLACK		FS204	●		●		●
47060	EF10/2 0+10 PVC AS GREEN	E240/2 0+10 PVC GREEN	FS203	●			●	
47096	ES7/2 00+P1 PU WHITE	2C112-P1	FS113	●		●	●	
47097	EM8/2 00+P1 PU WH	E120/2 0+P1 PU WHITE	FS113	●		●	●	
47098	EM6/1 00+P1 PU AS WHITE	EM4/1 00+P1 PU AS WHITE	FS113	●		●		
47101	EM/F10/2 0+P5 PVC AS BLACK		FS200	●		●		
47103	EM8/2 0+P13 PVCF WHITE	E120/2 0+P2 PVCF	FS200	●			●	
47104	EM12/2 0+0 PU LN AS WHITE		FS104	●		●	●	
47105	EM8/2 0+P6 PVCS LN AS GREEN	E120/2 0+P6 PVC	FS200	●			●	
47109	EC8/2 0+0 PVC WHITE		FS208	●		●	●	
47119	EM10/2 0+20 PVC AS GREEN	E250/2 0+20 PVC GREEN	FS206	●			●	
47120	EF18/3 P18+05 PVC AS GREEN	E360/3 05+05 PVC GREEN	FS207	●		●	●	
47121	EM18/3 P1+07 PVCF WHITE	E360/3 05+10 PVCF WHITE	FS204	●		●	●	
47123	EF15/3 05+05 PVC AS GREEN		FS207	●		●	●	
47124	EM4/1 00+02 PU AS GREEN	E60/1 0+02 PU G	FS100	●		●		
47125	EM8/2 00+P19 PVCF WHITE	E120/2 0+NP PVCF WHITE	FS200	●			●	
47126	EM8/2 0+P13 PVCS HF AS GREEN	E250/2 0+P2 PVC ST GREEN	FS200	●		●	●	
47127	EM8/2 0+P24 PVCS HF AS BLUE		FS202	●		●	●	
47129	EM10/2 0+10 PVCS HF AS GREEN	E250/2 0+10 PVC ST GREEN	FS203	●			●	
47131	EM 8/2 0+P24 PVCS HF AS BLACK		FS202	●			●	
47132	EF12/2 0+0 NR SILVER	E132/2 0+0 NR	CS100		●		●	
47139	EM10/2 0+10 NTR AS BLUE	E120/2 0+10 G	CS100		●		●	

TECHNICAL DATA SHEET

Recommended Conveyor Belt Splices

Sorted by Item Number

Item Number	Belt Designation	Old Belt Designation	Splicing Instructions	Temp		Type		
				Hot	Cold	Finger	Step	Skive
47140	EM10/2 0+25 NTR AS BLUE	E120/2 0+25 G	CS100		●		●	
47144	EM5/1 0+05 NTR AS WHITE	E60/1 0+05 G	SPCL					
47145	EM10/2 0+05 NTR AS WHITE	E120/2 0+05 G WHITE	CS100		●		●	
47154	EM8/2 0+P9 PVCS HF AS GREEN	E250/2 0+P9 PVC ST	FS200	●		●	●	
47160	EM10/2 P1+07 PVCF WHITE	E240/2 05+10PVCF	FS204	●		●	●	
47190	EF5/1 0+P19 PVCS BLUE		FS200	●		●		
47204	EM 8/2 00+P8 RP L. GREEN AS		CS100		●		●	
47220	EM8/2 00+P1 PVCF WHITE	E120/2 0+P1 PVC WHITE	FS200	●		●	●	
47225	EM/F10/2 0+P33 PVC AS BLACK		FS200	●		●	●	
47227	EM9/1 0+P33 PVCH AS LN BLACK		FS213	●		●		
47228	EM/F8/2 0+P33 PVCH AS BLACK		FS200	●		●		
47239	EM18/2 0+P5 NTR AS GREEN	E250/2 0+P5 G GREEN	CS100		●		●	
47283	ESM5/1 02+02 PE AS TRANS	EM5/1 01+02 PE TRANS	FS220	●		●	●	
47284	EM10/2 0+02 PE CLEAR		FS107	●		●	●	
47285	EM8/2 0+P7 PU WH	E120/2 0+P6-5 PU	FS113	●		●	●	
47291	EM/F8/2 0+P7 PVCS AS/4.3 BLACK		FS200	●		●	●	
47333	EF5/1 0+01 PU TRANSP		FS100	●		●		
47400	EM/C10/2 0+P22 PVC AS BLACK		FS214	●		●	●	
47420	EF13/3 0+40 NR RED	E135/3 0+40 NR RED	CS100		●		●	
47661	EM4/1 0+05 PVC AS BLACK	E60/1 0+05 PVC BLACK	FS204	●		●		
47668	EM8/2 00+00 PU(PVC)AS BLACK	E120/2 01+01 PU	FS201	●		●		
47671	EM 6/2 00+02 PU S/AS WHITE		FS103	●		●	●	
47673	EM8/2 00+02 PU AS GREEN	E120/2 0+02 PU	FS102	●		●	●	
47779	EM8/2 0+P15 PVCS HF AS GREY	E120/2 0+P11 ST GREY	FS202	●		●	●	
47785	ESM15/3 0+09 PVCF AS W		FS215	●		●	●	
47888	ESM15/3 0+18 PVCF AS W		FS215	●		●	●	
47912	EM10/2 0+P5 NTR AS WHITE	E120/2 0+P5 G WHITE	CS100		●		●	
47957	EF10/2 0+10 PVCF WHITE	E240/2 0+10 PVCF WHITE	FS204	●			●	
47962	EM8/2 0+P10 PVCF WHITE	E120/2 0+P10 PVCF	FS200	●		●	●	
48031	EM15/3 0+30 PVCS HF AS BLUE		FS215	●			●	
48032	EM10/2 00+00 PU(PVC)CR ORANGE		FS208	●		●	●	
48301	EM8/2 0+05 PVC AS GREEN	M2 105 AS PVC GREEN	FS209	●		●	●	
48302	EM8/2 0+05 PVCH AS BLUE	M2 102 AS PVCH	FS204	●			●	
48303	EM8/2 P1+05 PVC AS GREEN	M2 1055 AS PVC	FS204	●			●	
48304	ES6/2 0+06 PVC AS GREY	MS 2-55 PVC GREY	FS205	●		●	●	
48307	ES6/2 0+05 PVC GREEN	S2 55 PVC GREEN	FS209	●		●	●	
48309	ES6/2 0+05 PVCH AS BLACK	S2 53 PVCH BLACK	FS203	●		●	●	
48311	ES6/2 0+0 PVCF WHITE	S2 5 PVC WHITE	FS208	●		●	●	
48316	EM5/1 0+P10 PVCH AS BLACK	E 60/1 0+P10 PVC	FS200	●		●		
48318	EM5/1 0+P10 PVCH AS LN BLACK		FS200	●		●		
48320	EM10/1 0+P10 PVCH AS BLACK		FS200	●		●		
48322	EM8/2 00+P25 PVCS LN AS GREEN		FS200	●			●	
50014	EM4/1 00+00 PU GREEN	SP1	FS105	●		●		
50017	EM4/1 00+02 PU AS WHITE	SP2	FS100	●		●		
50021	EM4/1 00+02 PU AS TEX	SP3	FS118	●		●		
50031	EM3/1 00+00 PU AS WHITE	MF1	FS105	●		●		
50036	EM3/1 00+02 PU S AS WHITE	MF2G	FS100	●		●		
50040	EF8/1 00+05 PU AS WHITE		FS110	●		●		
50041	ES6/1 00+05 PU S WHITE		FS110	●		●		
50044	ES3/1 00+04 PU AS WHITE	PC4-4	FS100	●		●		
50045	EF 8/1 00+01 PU AS WHITE		FS106	●		●		
58700	EM26/3 0+40 NR BROWN	BX3 SL BROWN	CS100		●		●	
157252	NPF 25 HC BLACK		CS102		●			●
157253	NPF 25 FDA BEIGE		CS102		●			●
157254	NPF 40 HC BLACK		CS102		●			●
157255	NPF 30 HC FR BLACK		CS102		●			●
157258	NPF 60 BLUE		CS102		●			●
400011	EC6/3 01+01 NTR RED	N83F	CS100		●		●	
400021	EC10/5 01+01 NTR BRN/RED	N85F	CS100		●		●	
400172	ES12/3 01+11 NTRF WHITE	DS153C	CS100		●		●	
400221	ES6/3 01+P10 NTRF WHITE	HCT3	CS100		●		●	
400491	ES4/2 01+P10 NTRF WHITE	PTC2	CS100		●		●	
400511	ES10/3 01+P74 NT BROWN	N3VT	CS100		●		●	
400571	EC12/4 01+01 NTR BLACK	N154B	CS100		●		●	
400601	EC10/3 01+P73 SR TAN	3TSG	CS100		●		●	

TECHNICAL DATA SHEET

Recommended Conveyor Belt Splices

Sorted by Item Number

Item Number	Belt Designation	Old Belt Designation	Splicing Instructions	Temp		Type		
				Hot	Cold	Finger	Step	Skive
460141	ES6/2 00+02 PU LIGHT BLUE	DS92C LT BLUE	FS103	●		●		
460145	ES 8/2 P1+03 PU LIGHT BLUE		FS101	●		●		
460154	ES6/2 00+02 PU LIGHT GREEN	DS92C LIGHT GREEN	FS103	●		●		
460231	EM8/2 00+10 PU AS CL	SP2C-40AS	FS101	●		●	●	
460232	EM 8/2 00+05 AS PU WHITE HIGH FRICTI	SP2C 18 ASGW	FS101	●		●	●	
460361	EC9/3 0+0 PU NATURAL	3PCT	FS212	●	●		●	●
460371	EC3/1 0+02 PU WHITE	1PCT SP	FS118	●		●		
460381	EM12/2 0+00 LN PU AS GRAY	SP2F LN GRAY LOW NOISE	FS104	●		●		
460391		SP2FAAS POLYTEK	FS104	●		●	●	
460395	EM 10/2 00+0 PU AS LF BLACK	SP2F LOW FRICTION BLACK	FS104	●		●	●	
460459	EM8/2 00+00 PU AS DARK GREEN	SP2F DARK GREEN	FS104	●		●	●	
460461	EM8/2 00+03 AS PU W HF	SP2C-12ASG	FS102	●		●	●	
460465	EM 8/2 00+02 PU L AS WHITE	SP2CL	FS102	●		●	●	
460501	EC4/1 00+0 PU NATURAL	1PCM	FS109	●		●		
460503	EC4/1 00+0 PU NAT TEX	1PCX	FS109	●		●		
460504	EC4/1 00+0 PU NAT TEX	1PCXX	FS109	●		●		
460505	EC4/1 00+01 TEX	1PCX-5	FS118	●		●		
460521	EC6/1 00+0 MO COT - COTTON PU NAT.	1PCCM	FS109	●		●		
460531	ECC8/2 0+0 PU AS NATURAL	2PCHAS	FS115	●		●	●	
460624	EM8/2 00+04 PU SI AS CREAM	SL20 MONOFIL	FS114	●		●	●	
460662	ES7/2 0+0 TEX PU WHITE	2BX40	FS107	●		●	●	
460722	ES6/2 00+0 PU DP WHITE	2FB100DP	FS107	●		●	●	
461021	EM4/1 00+01 PU SI AS LIGHT GREEN	SP1 SI	FS117	●		●		
476731	EM10/2 0+02 PU SOL AS GR(3M)		FS102	●		●		
500171	EM6/1 00+05 PU S AS WHITE	SP2H	FS100	●		●		
500177	EM6/1 00+05 PU S DARK BLUE	SP2H DARK BLUE	FS100	●		●		
4607105	ES9/3 0+0 PU WHITE	3BX	FS212	●	●		●	●
46015T	ES6/2 00+02 PU S WHITE TEXTURED	DS92C TEX	FS118	●		●		

Notes:
1. Ammeraal Beltech will select the best splice for the application based on the type and size of the belt.
2. Single finger splices are standard on 1- and 2-ply PU and PVC belts. Double finger splices are available upon request.
3. Rubber and other non-thermoplastic belts are furnished with stepped or skived splices only.
4. Bagel belts are supplied with stepped or skived splices.
5. V-guided conveyor belts use stepped or skived splices.
6. Troughed belts are furnished with a step splice.

Ammeraal Beltech

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Branch Locations: GA - TX - KS - N. CA - NJ - PA - S. CA - MI - RI

TECHNICAL DATA SHEET

Conveyor Belt Durometer Hardness

Hard
SOFT
Shore A

This chart lists the Shore A durometer hardness for conveyor belts with top covers at least 0.1mm thick. Durometer values are not applicable to bare or impregnated belting. Values are for belts at a room temperature of 72°F and can vary when the belt is at higher or lower temperatures.

Designation	Former Designation	Item No.	Durometer Shore A, +/- 5
PU			
EF4/1 00+04 SI PU	SL10	46061	84
EF8/1 00+05 PU S AS	EF81C	50040	87
EM10/2 0+02 PE Clear		47284	92
EM3/1 00+02 PU S AS	MF2G	50036	87
EM4/1 00+02 PU AS		47124	92
EM4/1 00+02 PU AS White	SP2	50017	92
EM6/0 05+05 PU AS	CC60	46090	92
EM6/1 00+05 PUS AS	SP2H	500171	87
EM8/2 00+02 PU AS	SP2C	46046	92
EM8/2 00+02 PU AS Green		47673	92
EM8/2 00+04 SI PU AS	SL20	460624	84
EM8/2 00+05 PU AS White	SP2C-18AS	46023	92
EM8/2 05+05 PU AS	CC60-2	46091	92
ES3/1 00+04 PU S White	PC4-4	50044	87
ES6/1 00+05 PU S	ES61C	50041	87
ES6/2 00+02 PU	DS92C	46015	92
ES7/2 00+03 PU	2C112	46079	92
ES9/3 00+03 PU	DS93C	46016	92
PVC			
EF10/2 0+10 PVC AS		47060	77
EF10/2 0+10 PVCF		47957	77
EF18/3 P18+05 PVC AS		47120	77
EM/S 6/2 0+06 PVC AS		48304	80
EM10/2 0+10 PVCS HF AS Green		47129	60
EM10/2 0+20 PVC AS		47119	70
EM15/3 0+30 PVCS HF AS		48031	60
EM4/1 0+05 PVC Black		47661	84
EM4/1 0+05 PVCF		47012	84
EM8/2 0+05 PVC AS		48301	84
EM8/2 0+05 PVCH AS		48302	90
EM8/2 00+05 PVCF AS		47030	84
EM8/2 P1+05 PVC AS		48303	84
ES10/2 01+10 PVCF	BV100	40082	85
ES15/3 01+10 PVCF	BV150	40083	85
ES6/2 0+05 PVC		48307	85
ES6/2 0+05 PVCH AS		48309	90
MPLY12/1 00+06 PVC Black	165B	40200	84
MPLY15/1 00+06 PVC Black	150BCOS	40203	84
MPLY15/1 07+07 PVC Black	150CBS	40705	84
Rubber			
EC10/5 01+01 NT	N85F	40002	90
EC12/4 01+01 NT	N154B	40057	90
EC4/2 01+04 NTR F	WB152F	40007	90
EC6/3 01+01 NTR	N83F	40001	90
EC8/3 01+08 NTR F Black		40014	70
EC8/3 01+08 NTR F White	WB153C	40011	70
EF13/3 0+40 NR Red		47420	45
EF16/3 01+16 NTR F	DS253C	40056	70
EM10/2 0+05 NTR AS		47145	85
ES12/3 01+11 NTR F	DS153C	40017	70
ES8/2 01+11 NTR F	DS152C	40016	70
GL26/3 0+16 SI	AS235	44016	70

Reference:Technical Guideline, Durometer-Shore A, B, C and D Hardness, Doc. No. 03-05-002

TECHNICAL DATA SHEET

Physical Properties/Chemical Resistance

Property	Butyl	Natural Rubber	Neoprene	Nitrile Buna N NBR	PVC	Silicone	Teflon	Urethane Polyurethane	Hytrel
Abrasion Resistance	F	E	G	E	G	F	E	E	E
Flame Resistance	P	P	G	P	E	G	G	P	
Heat Resistance	E	F	G	G	F	E	E	F	
Cold Resistance	E	E	G	G	F	E	E	E	
Resilience	F	E	G	F	G	G	P	G	
Oil Resistance	P	P	F	G		F		G	E
Solvent Resistance	P	P	F	G		P		P	
Sunlight Resistance	E	P	G	P	E	E	G	E	
Tear Resistance	F	E	G	G		P		E	
Resistance to Aging	E	G	E	E	G	E	E	G	
Chemical Resistance ***Chemicals***									
Acetic acid 30%	G	G	E	G	P	E	E	P	G
Acetone	E	F	F	P	P	F	E	P	F
Alcohols	G	G	G	G	G	G	E	G	G
Ammonia (Liquid)	E	P	E	G	E	F	E	P	
Bleach solutions	E	P	P	P	G	G	E	P	
Borax	E	F	E	F	E	G	E	E	G
Boric acid	E	E	E	E	E	E	E	E	G
Brine	E		E	E	E	E	E	F	
Carbon tetrachloride	P	P	P	F	G	P	E	P	F
Caustics (sodium hydroxide)	E	E	G	G	E	G	E	F	G
Chlorine (Liquid)	P	P	P	P	G	F	E	P	
Chlorox	G	P	G	G	E	G	E	P	
Citric acid	E	E	E	E	E	E	E	F	G
Denatured alcohol	E	E	E	E	F	G	E	P	G
Detergent solutions	E	G	G	E	E	E	E	P	
Dry cleaning fluids	P	P	P	F	P	P	E	P	
Glycols	E	E	E	E	E	E	E	P	G
Hydrochloric acid (cold 37%)	E	G	G	G	F	G	E	P	P
Ink and paint driers	E	P	E	E	G	G	E	G	
Lubricating oil	P	P	G	E	E	F	E	G	G
MEK	E	P	P	P	P	P	E	P	F
Mineral oils	P	P	G	E	E	G	E	E	G
Naptha	P	P	P	F	P	P	E	F	G
Ozone	G	P	F	P	F	E	E	E	F
Petroleum oils	P	P	G	E	F	G	G	G	
Silicone lubricants	E	E	E	E	E	F	E	E	G
Soap solutions	E	G	E	E	E	E	E	E	
Sodium hydroxide (20%)	E	E	G	G	E	G	E	F	
Steam (below 350)	G	P	P	P	E	P	E	P	F
Sulfuric acid (dilute)	F	F	G	P	G	P	E	F	G
Tannic acid	E	E	G	E	E	G	E	F	G
Tartaric acid	G	G	G	E	E	E	E	E	
Toluene	P	P	P	P	P	P	E	P	F
Trichloroethylene	P	P	P	P	P	P	P	P	F
Trichloroethane	P	P	P	P	P	P	E	P	F
Turpentine	P	P	P	E	F	P	E	P	P

E -Excellent **G** -Good **F** -Fair **P** -Poor

This chart is to be used as a general guide for the resistance of various materials to foods and chemicals. Temperature, pressure, concentrations and the presence of other chemicals can alter the results.

TECHNICAL DATA SHEET

Physical Properties/Chemical Resistance

Property	Butyl	Natural Rubber	Neoprene	Nitrile Buna N NBR	PVC	Silicone	Teflon	Urethane Polyurethane	Hytrel
Chemical Resistance *Foods*									
Animal Fats	G	P	G	E	G	G	E	G	E
Baking soda		E		E	E	E	E	E	
Bone oil			P	E					
Butter	G	P	F	E	G	F	E	G	E
Butter milk	G	P	E	E	E	E	E	G	
Castor oil	E	P	E	E	E	E	E	E	F
Cider	G	E	E	E	E	G	G	P	
Cinnamon oil			F						
Citric oil			P	E			P		G
Clove oil			F	E					
Coconut oil	G	P	G	E	G	G	E	G	G
Cod liver oil	E	P	G	E	G	G	E	E	
Coffee	E	E	E	E	E	E	E	G	
Corn oil	G	P	G	E	G	G	E	G	G
Corn syrup		G		G	E	E	E	E	
Cottonseed oil	G	P	G	E	G	G	E	G	G
Cream			F	E			E	G	
Fatty acids	P	P	G	G	F	G	E	G	G
Fish oil				E		E		F	
Fruit juice	G	P	E	E	E	G	E	P	
Gelatin	E	E	E	E	E	E	E	F	
Ginger oil			E	E					
Glucose	E	E	E	E	E	E	E	G	G
Glycerine	E	E	E	E	E	E	E	E	G
Grape juice	G	P	E	E	G	G	P	F	
Honey					E		E	G	
Ketchup			F	E	E			G	
Lactic acids	E	E	E	E	G	E	E	E	G
Lard	P	P	F	E	G	G	E	G	E
Lemon oil			P				E		
Linseed oil	F	P	F	E	G	E	E	G	E
Maize oil					G	E	E	F	
Mayonnaise		P	E	F	P		P		
Milk	E	E	E	E	E	E	E	G	
Molasses	E	E	E	E	E	E	E	E	G
Mustard		G	E	F	G		E	G	
Olive oil	G	P	G	E	F	P	E	E	
Orange oil			F	E		P			G
Palm oil			P	E	E			F	
Peanut oil	F	P	G	E	G	E	E	F	G
Peppermint oil			P	P					
Pine oil	P	P	P	G	E	F	E	G	G
Rapeseed oil	E	P	G	G		P		G	
Saccharin					E	E	E	E	
Salad dressing				E					
Salt water	E	E	E	E	E	E	E	G	
Salt	E	E	E	E		E		E	
Sesame seed oil			P	E	E		E		
Soybean oil	G	P	F	E	G	E	E	F	E
Sucrose	E	E	G	E		E		P	
Sugar beets	E	E	E	E	E	E	E	E	
Sugar cane	E	E	E	E	E	E	E	E	E
Vanilla					E	E	E	E	
Vegetable oil	F	P	F	E	G	E	E	G	E
Vinegar	E	G	G	G	E	E	E	P	E
Wine	E	E	E	E		E		F	
Yeast					E	E	E	E	

E -Excellent **G** -Good **F** -Fair **P** -Poor

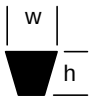
This chart is to be used as a general guide for the resistance of various materials to foods and chemicals. Temperature, pressure, concentrations and the presence of other chemicals can alter the results.

Doc. No. 01-04-001 5/99

TECHNICAL DATA SHEET

Belt Guides - Minimum Pulley Diameters

Rectangular and V profiles can be used as longitudinal tracking guides on belting. The shape, size, configuration and material used for the guide determine the minimum pulley diameter. The information tabulated below is an expanded version of the data shown in the Special Fabrications booklet.

			Minimum Pulley Diameter, inches					
			Standard		Notched		Reverse Bend	
Profile	Width,mm	Height,mm	PVC	PU	PVC	PU	PVC	PU
	6	5	1.5	2.5	1	1.75	2.25	3.5
	8	5	2	3.5	1.5	2.5	3	5
	10	6	2.5	4	1.75	3	3.5	5.75
	12	5.5	3	5.5	2	4	4.25	8
	13	8	3	5.5	2	4	4.25	8
	15	8.5	4	7	3	5	5.75	10
	17	11	5	8	3.5	5.5	7.25	11.5
	22	11	6	9	4.25	6.5	8.75	13
	30	16	8	NA	5.5	NA	11.5	NA
	6	4	2.5	NA	NA	NA	2.5	NA
	13	10	5	NA	NA	NA	5	NA
	17	15	12	NA	NA	NA	12	NA
	up to 30	3	3	NA	NA	NA	3	NA
	21	5	4	NA	NA	NA	4	NA
	30	8	5	NA	NA	NA	5	NA

NA = Not Available

Reference: Technical Guideline-Belt Tracking, Document No. 03-02-001

TECHNICAL GUIDELINE

Belt Conveyor Troubleshooting

This troubleshooting guide will assist you in determining the most common causes for your conveyor belt problems. Recommended solutions are provided to assist you in correcting the situation.

CATEGORY	
A. Problem	
1. Cause	1. Solution

BELT CONSTRUCTION	
A. Delamination	
1. Pulleys too small which causes tight turn.	1a. Install larger pulleys. 1b. Use a belt with a smaller minimum pulley diameter.
2. Excessive pulley crown stresses carcass.	2. Reduce crown height to the recommended value.
3. Chemical incompatibility.	3. Use a belt with the correct chemical resistance.
4. Cut edge wicks liquids.	4. Install a belt with sealed edges.
5. High temperature softens belt compounds.	5. Use a high temperature belt.
6. Numerous reverse bends cause flexing.	6. Minimize reverse bends.
B. Incorrect Size	
1. Did not specify inner circumference.	1. Measure inner circumference.
C. Shrinkage	
1. Water absorption.	1a. Store in a dry location. 1b. Install a belt with sealed edges. Use a Hytrel belt.
2. Damage by chemicals.	2. Use a belt with the correct chemical resistance. Seal the fabric.
D. Static Electricity	
1. Relative motion creates electrical charge.	1a. Install a belt with anti-static properties. 1b. Ensure conveyor is properly grounded.
2. Low humidity.	2. Increase humidity in a controlled environment.
E. Stretch	
1. Belt undersized for applied load.	1. Recalculate load requirements and change belt.
2. Tension set too high.	2. Adjust belt tension to the recommended value.
3. Material build-up on rollers and bottom cover.	3. Install scrapers to clean belt and rollers.
4. Damage by chemicals, abrasives or heat.	4. Use a belt with the correct chemical resistance and physical properties.

BELT COVERS	
A. Top Cover Cracks	
1. Belt undersized for applied load.	1. Recalculate load requirements and change belt.
2. Sharp bend caused by small pulleys.	2a. Install larger pulley. 2b. Use a belt with a smaller minimum pulley diameter.
3. Heat exposure ages cover.	3. Check maximum temperature and change belt.
4. Low temperature.	4. Check minimum temperature and change belt.
5. Shrinkage.	5. Use heat or chemical resistant belt.
6. Reaction to cleaning solutions and chemicals.	6. Use a belt with the correct chemical resistance.
B. Bottom Cover Cracks	
1. Belt undersized for applied load.	1. Recalculate load requirements and change belt.
2. Sharp bend caused by small pulleys.	2a. Install larger pulley. 2b. Use a belt with a smaller minimum pulley diameter capability.
3. Belt slipping on drive pulley creating heat.	3a. Adjust belt tension to the recommended value. 3b. Install lagging on drive pulley.
4. Belt overstressed by excessive crown.	4. Reduce crown height to the recommended value.
C. Edge Cracks	
1. Belt edges fold up.	1a. Adjust tracking guides. 1b. Use a monofilament belt.
2. Material build-up.	2. Install scrapers to clean the belt and rollers.

D. Longitudinal Cracks

1. Heavy objects fall on belt. No cushioning.	1a. Reduce fall height. 1b. Install impact absorption rollers to conveyor below impact zone.
2. Material build-up on rollers and bottom cover.	2. Install scrapers to clean belt and rollers.

E. Soft and Tacky Cover

1. Reaction to cleaning solutions and chemicals.	1. Use a belt with the correct chemical resistance.

BELT DAMAGE

A. Top Cover Wear

1. Return idlers not turning.	1. Lubricate or replace idlers.
2. Material build-up on return rollers.	2. Install scrapers to clean rollers.
3. Excessive pressure exerted by scrapers.	3. Adjust scraper bar so that it lightly touches the belt.

B. Bottom Cover Wear

1. Belt slipping on drive pulley.	1a. Adjust belt tension to the recommended value. 1b. Install lagging on drive pulley. 1c. Install a snub roller to increase the wrap.
2. Excessive pressure exerted by scrapers.	2. Adjust scraper bar so that it lightly touches the belt.
3. Rough surface on slider bed or pulley.	3. Replace worn or damaged components.
4. Excessive inclination of trough rollers.	4a. Reduce inclination. 4b. Remove 1-ply from bottom edge of belt to increase flexibility.
5. Lagging attachments damaging belt.	5. Replace lagging and countersink fasteners.

C. Creases Across Width

1. Hot nose bar deforms belt when stopped.	1a. Change to nose roller. 1b. Add cooling feature to nose bar.

D. Edge Wear or Fraying

1. Load on edge of belt.	1. Install plow to move load towards the belt's center.
2. Improper tracking.	2. See **TRACKING**.
3. Belt folds up onto conveyor frame.	3a. Change to a stiffer or monofilament belt. 3b. Add edge guides.
4. Edge rubs against a frozen roller flange.	4. Lubricate or replace roller.
5. Edge contacts rotating roller flange.	5a. Reduce belt width. 5b. Align rollers.
6. Unequal conicity on cone drive.	6a. Shift pulleys. 6b. Reduce belt width. 6c. Increase belt strength.

E. Tearing

1. Tension set too high.	1. Adjust belt tension to the recommended value.
2. Inadequate cover.	2. Change to tear resistant belt.
3. Sharp conveyor component.	3. Inspect conveyor and repair part.
4. Damage by chemicals.	4. Use a belt with the correct chemical resistance.
5. Impact and surge loads from falling product.	5a. Reduce the fall height. 5b. Install impact absorption rollers below impact zone. 5c. Select a belt with a higher impact and surge load capacity.

F. Wrinkles or Folds

1. Shaft deflection compresses center of belt.	1a. Add intermediate support bearings to the shaft or roller. 1b. Change shaft or roller material to improve resistance to deflection.
2. Incorrect crown on pulley.	2. Change to recommended shape and dimensions.

NOISE

A. Excessive Noise

1. Pulley diameter too small for belt speed.	1. Increase pulley diameter.
2. Tension set too high.	2. Adjust belt tension to the recommended value.
3. High drive load.	3. Use a belt with a higher load capacity.
4. Pulleys misaligned.	4. Align and square the pulleys.
5. Belt design.	5. Change to a low noise belt.

SLIP

A. Surging

1. Slack side tension too low.	1a. Adjust belt tension. 1b. Install a snub roller to increase belt wrap on drive pulley. 1c. Install or replace lagging on drive pulley. 1d. Reduce wrap or angle of contact at nosebar.
2. Suction between slide bed and belt.	2. Perforate belt or slide bed.

B. Slip between belt and drive pulley

1. Material build-up on pulleys or belt.	1. Install scrapers at the pulleys and on the inside of the belt in the return section.
2. Slack side tension too low.	2a. Adjust belt tension to the recommended value. 2b. Install a snub roller to increase belt wrap on drive pulley. 2c. Install or replace lagging on drive pulley.
3. Pulley diameter too small for belt speed.	3. Increase pulley diameter and reduce rpm.
4. Pulley out of alignment.	4. Align and square pulley.
5. High drag on conveyor.	5a. Lubricate and maintain idle rollers and bearings. 5b. Clean and adjust scrapers to lightly contact belt and rollers. 5c. Replace slide bed with one having a lower coefficient of friction. 5d. Install a belt with a lower coefficient of friction.

C. Slip when belt starts

1. Insufficient tension.	1a. Adjust belt tension to the recommended value. 1b. Add a snub roller to increase belt wrap on drive pulley.
2. Acceleration rate too high.	2. Reduce acceleration rate.
3. Worn drive pulley.	3. Replace lagging or pulley.

SPLICE FAILURE

A. General Splice Failure

1. Heat or glue applied improperly.	1. Remake splice following step by step procedure.
2. Tension set too high.	2. Adjust belt tension to the recommended value.
3. Sharp bend caused by small pulleys.	3a. Increase pulley diameter. 3b. Use a belt with a smaller minimum pulley diameter.
4. High belt speed causes belt whip.	4. Reduce belt speed.

B. Mechanical Splice Separation

1. Incorrect fastener or installation process.	1. Properly match fastener to belt application.
2. Belt too thin.	2. Properly match fastener to the belt.
3. Sharp bend caused by small pulleys.	3a. Increase pulley diameter. 3b. Change fastener recommendation type. 3c. Use a belt with a smaller minimum pulley diameter.
4. Tension set too high.	4. Adjust belt tension to the recommended value.
5. Abrasive material wears fastener.	5. Use vulcanized splice.
6. Belt scraper snags fastener.	6. Adjust scraper bar so that it lightly touches the belt.

C. Vulcanized Splice Separation

1. Incorrect splice type.	1. Properly match splice type to belt application.
2. Splice procedures not followed.	2. Remake splice following step by step procedures.
3. Sharp bend caused by small pulleys.	3a. Increase pulley diameter. 3b. Change splice type. 3c. Use a belt with a smaller minimum pulley diameter.
4. Tension set too high.	4. Adjust belt tension to the recommended value.
5. Impact or surge loads from falling product.	5a. Reduce fall height. 5b. Install flexible rollers in the impact zone.
6. Material build up between belt and pulley.	6. Install scrapers on pulley and inside of belt in return section.

D. Longitudinal Splice Fails

1. High stress due to pulley crown.	1a. Remove crown or reduce height to the recommended value. 1b. Install a belt with an offset splice.
2. Splice procedures not followed.	2. Remake following step by step procedure.

E. Cracks Behind Fastener

1. Mechanical fastener too large for pulley.	1. Replace fastener sized for the pulley diameter.

F. Fastener Tears Loose

1. Incorrect fastener size.	1. Replace with properly sized fastener
2. Tension set too high.	2. Adjust belt tension to the recommended value.
3. Sharp bend caused by small pulleys.	3a. Increase pulley diameter. 3b. Change splice type.
4. High speed causes belt whip.	4. Install a stiffer belt.
5. Belt undersized for applied load.	5. Recalculate load requirements and change belt.

TRACKING

A. Belt Forms an "S"

1. Belt is torn on one side.	1. Replace or repair belt.
2. Belt cut incorrectly.	2. Replace belt.
3. Conveyor misalignment.	3. Align and square rollers and frame.
4. Tension uneven.	4. Check tensioner for ease of movement.
5. Improper storage.	5. Store on racks supported by a shaft through belt core.

B. Belt Shifts at Multiple Points on Conveyor

1. Material build up on rollers.	1. Install scrapers on pulley and inside of belt in return section.
2. Rollers not aligned.	2. Align and square rollers.
3. Load near edge of belt.	3. Install plow to move load towards the belt's center.
4. Crooked splice.	4. Square belt ends and re-splice.
5. Excessive pulley crown.	5. Reduce crown height.
6. Too little pulley crown.	6. Increase tension slightly.
7. No pulley crown.	7. Crown head or tail pulley.
8. Belt lacks flexibility across its width.	8. Replace with a more flexible belt.
9. Idle rollers improperly spaced.	9. Relocate idlers or insert additional to properly support the belt.

C. Belt Shifts at One Point on Conveyor

1. Idle roller before this point skews belt.	1. Align and square roller.

D. Belt Shifts at Same Part of Belt

1. Splice made incorrectly.	1. Remake splice following step by step procedure.
2. Belt not cut straight.	2. Repair or splice in a new section.
3. Edge worn or torn.	3. Repair or splice in a new section.
4. Improper storage or humidity distorts belt.	4. Apply tension for a few days to straighten belt.

Establishing the centerline of a belt is important for the accurate layout of longitudinal guides (V-guides) and the preparation of truly square belt ends and splices. The established centerline becomes the reference from which measurements can be taken without concern for the condition of the belt's edges. Two ways of determining the centerline are as follows:

Tape Measure Method

1. At intervals of 1 to 2 feet, use a tape measure to mark a group of three to five points that are one half the belt's width from the same edge (Fig. 1). Create these groups at both ends of the belt and in one or more areas in the middle portion of the belt. The number of groupings will depend on the belt's length.
2. Establish the centerline by using a long straight edge or a chalk line. Since the center marks will not be perfectly aligned, the centerline will be the line that fits the best between or through the marks.
3. To square the ends of the belt, lay one edge of a carpenter's square on the centerline. Place a straight edge on the other leg and draw a line across the width of the belt. This line will be perpendicular or square to the centerline.
4. To layout V-guides, measure from the centerline to the centerline of the guide. Mark a series of these points down the length of the belt. Again, use a straight edge to draw a line that is the best fit between or through these marks.

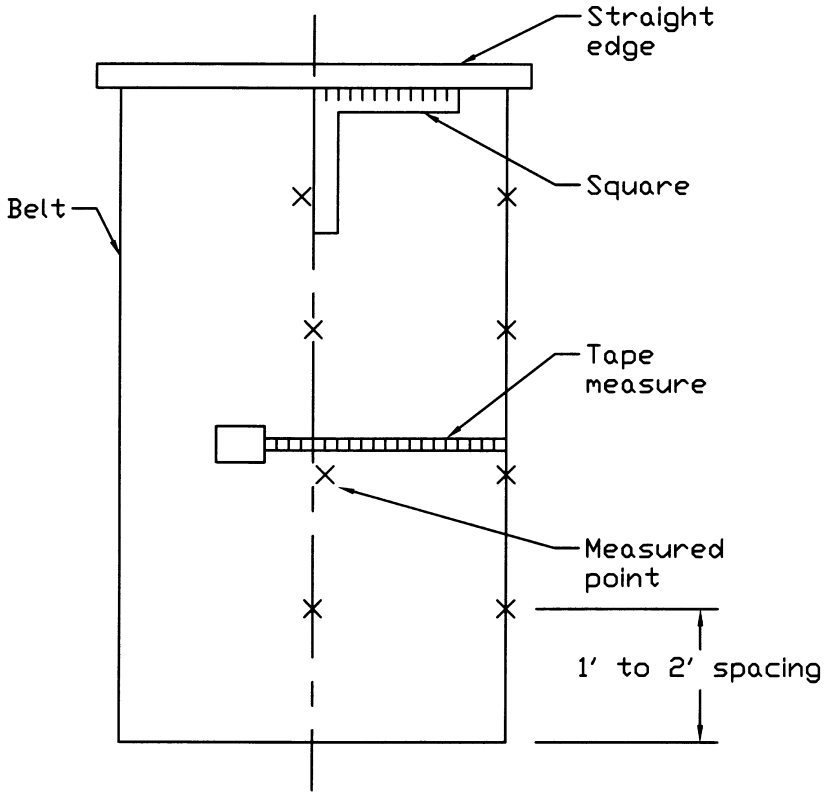


Fig. 1

Arc Method

1. With a carpenter's square and a straight edge, draw a line from one edge of the belt to the other edge (Fig. 2A).
2. With the points A and B as centers and a radius greater than one-half the length of the line, draw circular arcs. This can be done with a large compass or a pencil attached to a stretched string.
3. The intersections of the arcs, points C, are points on the centerline of the belt (Fig. 2B).
4. Depending on the length of the belt, repeat steps 2 and 3 at a few points along the length of the belt.
5. Using a long straight edge or chalk line, establish a straight line that fits the best between or through the points created by the intersection of the arcs.
6. To square the ends of the belt, lay one edge of a carpenter's square on the centerline. Place a straight edge on the other leg and draw a line across the width of the belt. This line will be perpendicular or square to the centerline.
7. To layout V-guides, measure from the centerline to the centerline of the guide. Mark a series of these points down the length of the belt. Again, use a straight edge to draw a line that is the best fit between or through these marks.

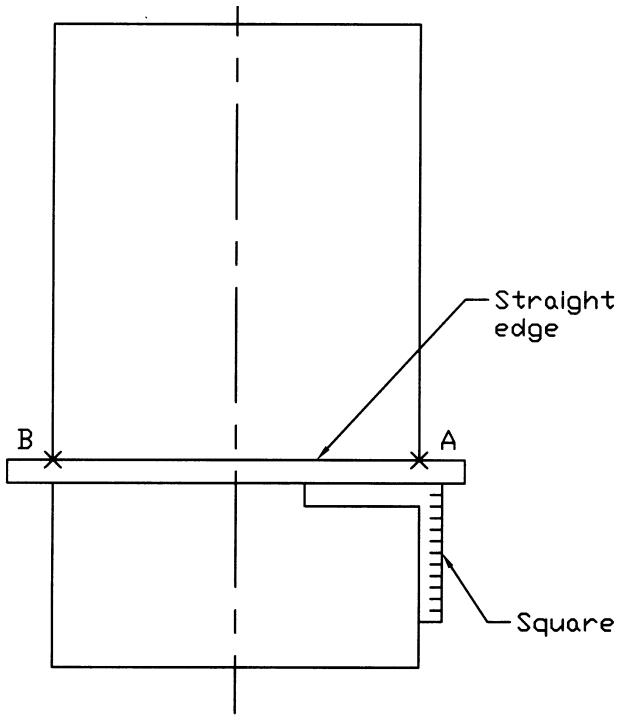


Fig. 2A

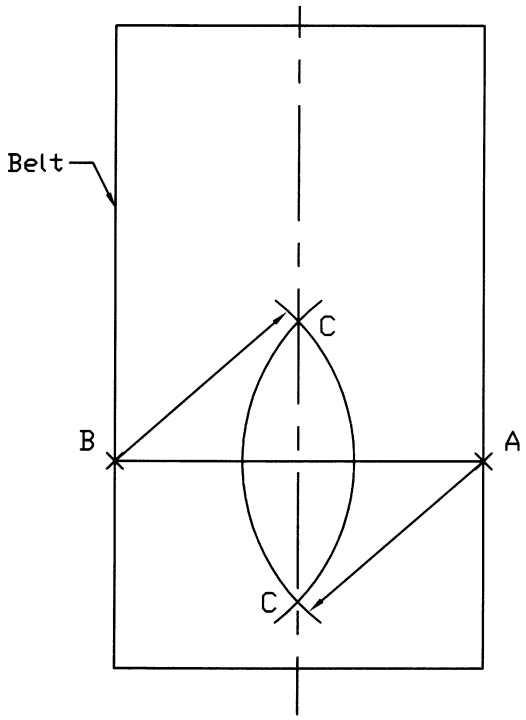


Fig. 2B

Belt strength ratings can appear in either the English or metric systems of measurement. The English system is used in the U.S.A. where belt strength is quantified in terms of **p**ounds per **i**nch of belt **w**idth or piw. The belt strength is defined as the maximum safe working strength of the material at 1% elongation. The material's actual breaking strength can range from 8 to 15 times the working strength.

A common metric system designation is $k_{1\%}$ which has measurement units of newtons/millimeter of belt width or N/mm. This nomenclature also identifies the belt's maximum safe working strength at 1% elongation. Again, the material's breaking strength is significantly higher than the working strength. The conversion factor from N/mm to piw is 5.71. As an example, the piw of a belt rated at 8 N/mm is 8 x 5.71 or 45.68 which is rounded to 46 piw.

The National Industrial Belting Association, NIBA, indicates that another European designation may be used. When you see a belt with an EP designation, such as, EP100, this is a designation for a combination polyester (E) and polyamide (P) belt where the 100 refers to the material's breaking strength instead of working strength. The units are in newtons/mm of width or N/mm.

The relationship between piw and EP is a matter of converting the units and accounting for the difference between the working and breaking strengths. To convert N/mm to piw, multiply N/mm by 5.71. To convert the EP's breaking strength to the piw's working strength, divide by the ratio of breaking strength to working strength.

For example, the following calculation is used to convert an EP100 belt to piw assuming a strength ratio of 10.

$$\frac{(100 \text{ N/mm})\ 5.71}{10} = 57.1 \text{ piw}$$

Of the three approaches, the preferred way to rate a belt's strength is to use its maximum safe working strength at 1% elongation in terms of piw.

Reference: National Industrial Belting Association, NIBA

Introduction

Belt conveyors require a means to maintain the belt's track as it travels through the conveyor. This guideline provides you with basic information regarding the methods used to accomplish this. It allows you to assess an installation to determine if the arrangement and application used in your specific situation is appropriate.

Belt tracking arrangements range from simple sideboards to sophisticated processor controlled systems that can handle multiple conveyors. The purpose of each type is to maintain the belt's position relative to a control or reference point. The desired accuracy determines which type of arrangement is best suited for the application. It is important that the entire conveyor frame is sturdy and accurately aligned, with all pulleys and rollers parallel and square to the frame. Material accumulation on pulleys and rollers, mechanical problems with the conveyor, and belt fabrication issues can contribute to tracking difficulties.

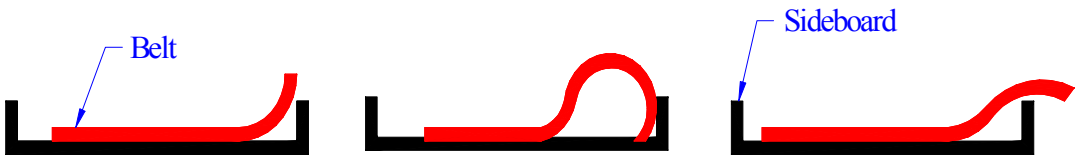
There are four basic ways to track or guide a belt.

1. Sideboard or Edge Guide.
2. Roller or Pulley Profile
3. Longitudinal Guide
4. Mechanical Tracking Device
   A. Manual
   B. Automatic

1. Sideboard or Edge Guide

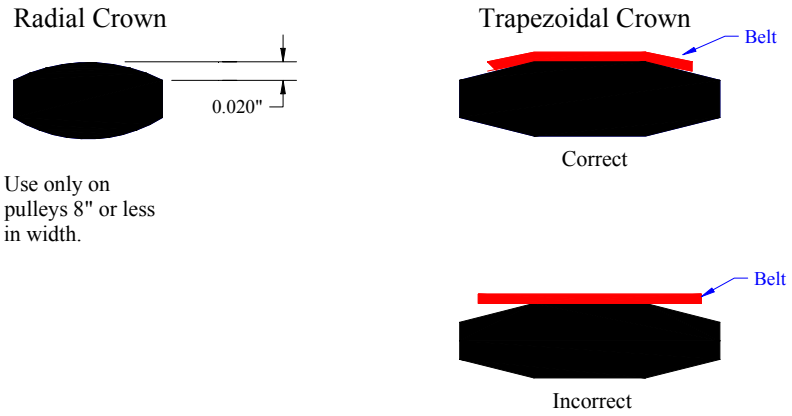
This is the simplest and least expensive method of guiding a belt. Sideboards or edge guides that are on the slider bed provide resistance to the lateral movement of the belt, which confines the belt between the edge guides.

This method works best with stiff, multiple ply belts. The edges on lightweight one or two ply belts can easily curl up, fold over or override the edge guide. Belt edges can also wear rapidly from the constant contact with the guide especially if the conveyed material is abrasive.

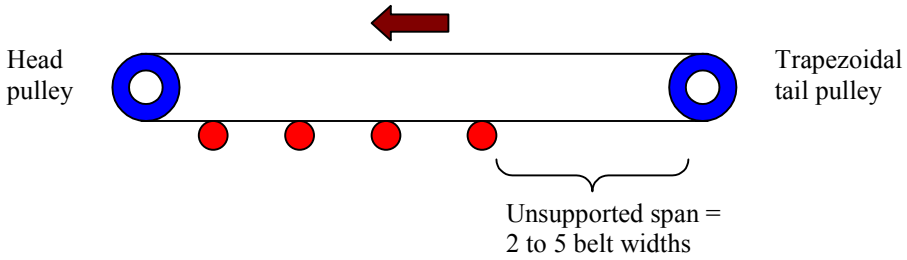


2. Roller of Pulley Profile

Another way to track a belt involves the use of either a radial or trapezoidal profile on a roller or pulley. These shapes generate sufficient steering forces to guide a belt. Do not crown a drive roller or pulley when there are other tracking devices on the conveyor. The different arrangements can counteract each other. Do not crown adjacent rollers for the same reason.



A crowned roller or pulley is effective in centering a belt if the approach to the pulley is an unsupported span that is not influenced by the guiding action of angled idlers. This span should be maximized and in the range of 2 to 5 belt widths. If there is no such span, the tracking effect of the roller is essentially non-existent. For example, crowning the head pulley on a trough conveyor belt would be of no benefit because the span between it and the transition roller is usually too short. The trough idlers also create a steering action that can counteract a crowned pulley.

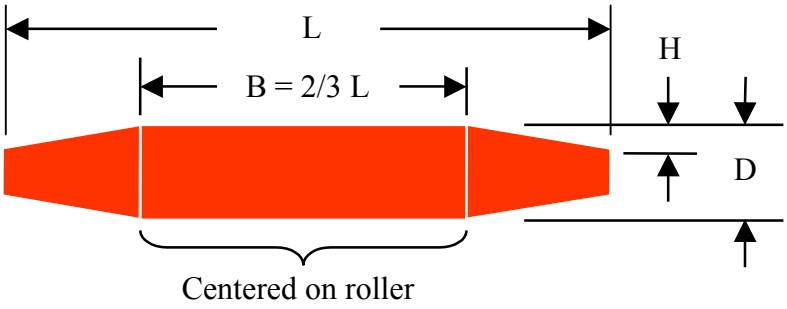


Proper tension must be maintained to ensure that the belt conforms to the profile. If the tension is too high, a stiff belt is used or the profile is incorrect, then high stresses will be concentrated in the center of the belt. This increases wear and shortens belt life.

Only straight, cylindrical profiles should be used on conveyors with a two-pulley drive arrangement and all drive snub rollers. This ensures full belt contact with the pulley or roller. Power transmission is maximized and unnecessary flexure of the belt as it conforms to the profiles on adjacent rollers is avoided.

Straight, cylindrical profiles should also be used with low stretch belts that have high tensile strength members in the carcass, e.g., Kevlar reinforced belting. These types do not easily flex to match radial or trapezoidal crowns.

Dimensional recommendations for a trapezoidal crown are shown in the next illustration. The cylindrical portion should be centered on the roller. Radius the transition from the cylindrical section to the tapered section. Excessive tapers are detrimental to the belt since the belt's edges do not equally share the load.



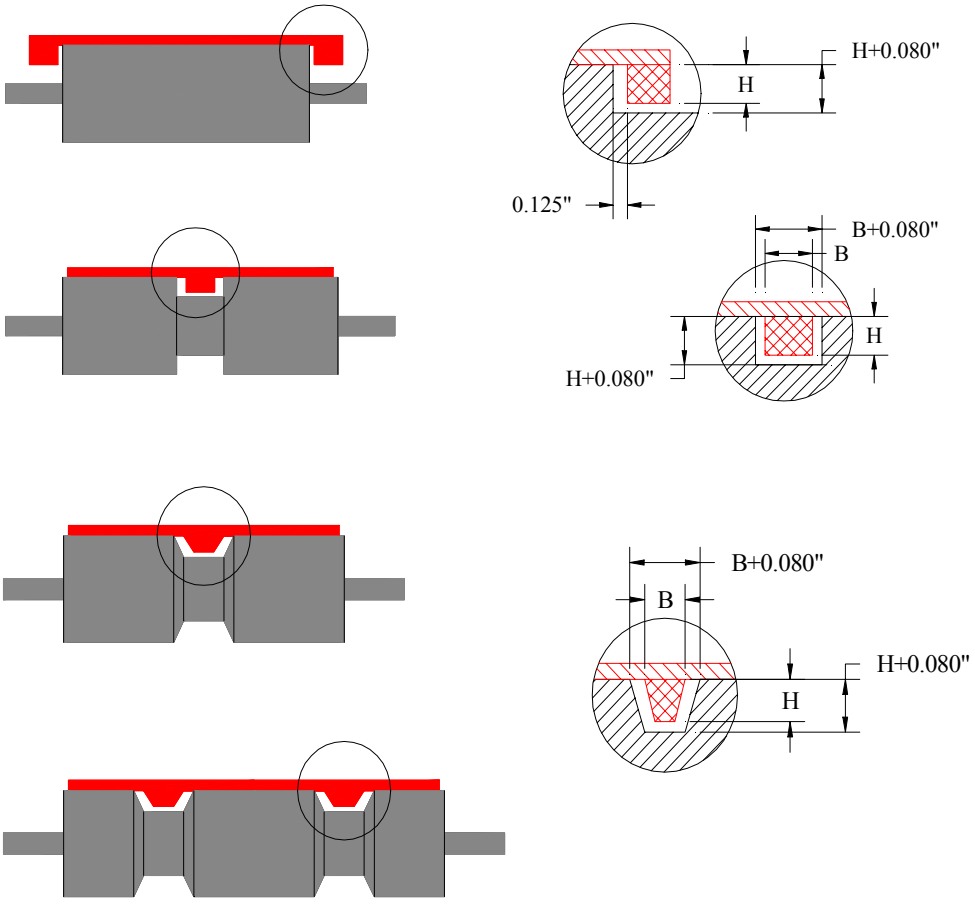
Dia., D	< 2"	2"-4"	4"-10"	10"-16"	16"-24"
Crown, H	0.008"	0.012"	0.020"	0.028"	0.039"

3. Longitudinal Guide

Conveyor belts can have a V or rectangular shaped profile attached to the bottom, running side of the belt. These provide a positive, fixed means to guide a belt and can be configured in a number of ways. Most require matching grooves in the slider bed and rollers that contact the running side of the belt. Do not crown pulleys or rollers when a longitudinal guide is used.

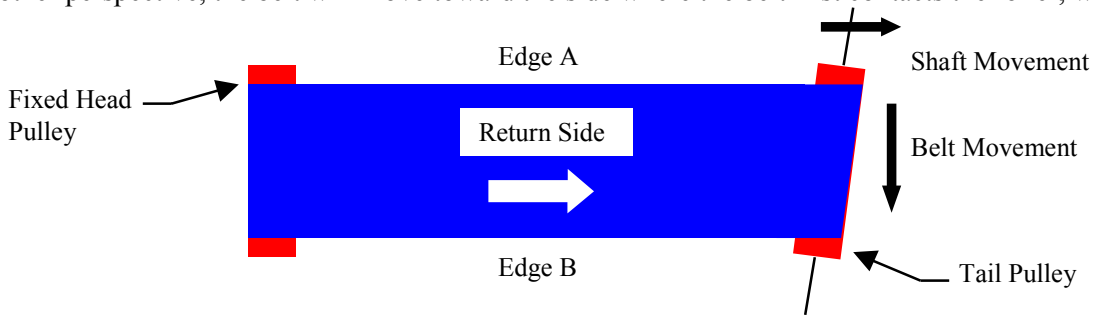
In order to prevent edge wear of the longitudinal profiles, the grooves need to be 0.080" wider than the profile minimum. The groove in a slider bed should be ¼" wider with the groove depth increased when the belt is operating in a high contaminant situation. Do not use V-guides on the edges of the belt. The guides have a tendency to ride up and out of the groove.

Drive rollers should be lagged to prevent the need for high tension. Operate V-guided belts at minimal tension. Notching V-shaped profiles extends belt life, provides greater flexibility and smaller minimum pulley diameters. See Appendix A for minimum pulley diameters for V and rectangular guides.

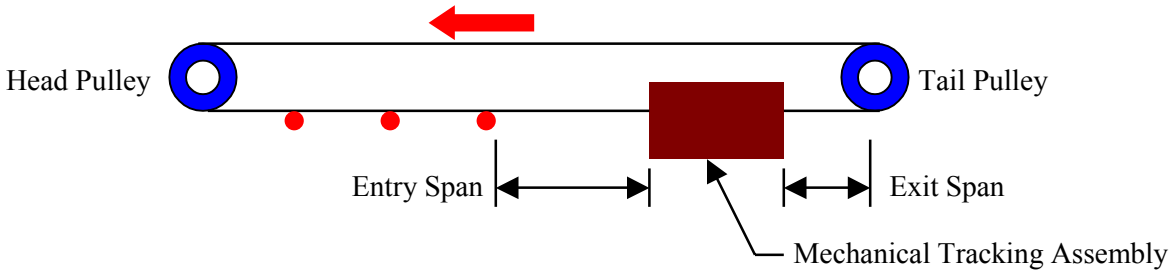


4. Mechanical Tracking Devices

Mechanical tracking devices operate on the principle that a belt will move in a direction away from the higher tension edge. In a simple two-roller conveyor, pivoting one roller in a line parallel to the belt stretches and increases the tension in one edge (Edge A). This causes the belt to move away from the higher tension. From another perspective, the belt will move toward the side where the belt first contacts the roller, which is Edge B.



Mechanical trackers are located in the return section near the tail pulley as far as possible from upstream rollers that have any amount of wrap. Free, unsupported entry spans should be maximized. This gains the greatest amount of leverage to move the belt. **Entry spans** of 2 to 3 belt widths are acceptable. **Exit spans** of 1 to 2 belt widths are desirable. Trackers can be operated either manually or automatically.



A. Manual Type

Manual arrangements utilize a single roller that has one end fixed and the other movable by means of a turn screw. The operator determines the amount of adjustment required to move the belt's edge to the desired location.

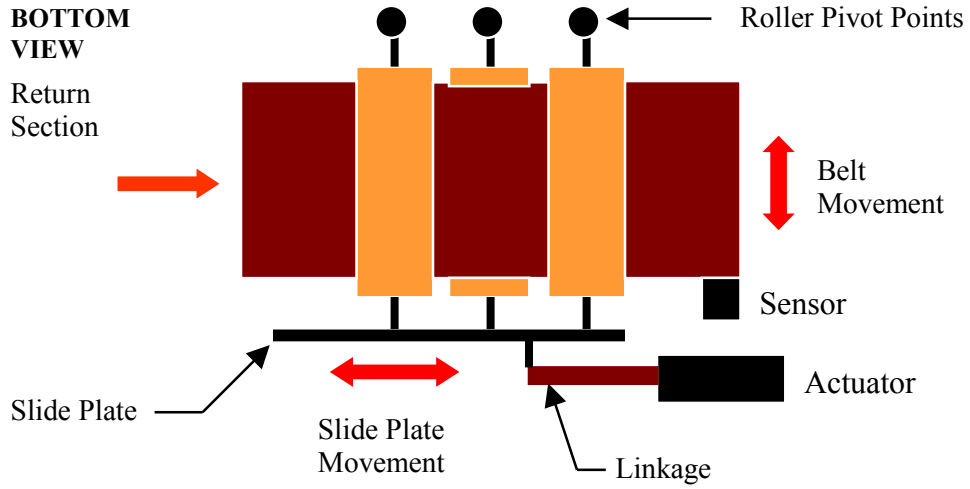
B. Automatic Type

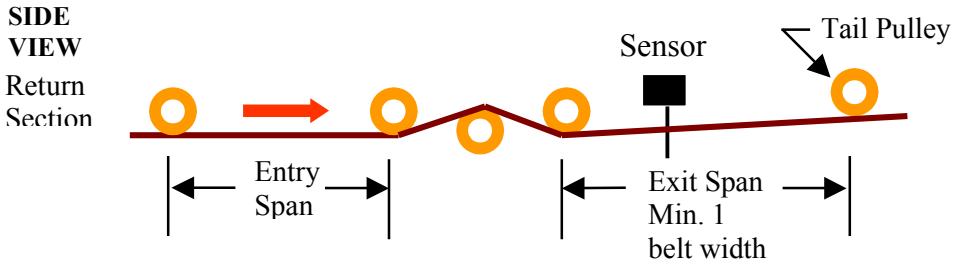
Automatic assemblies generally consist of a set of two or three parallel, smooth-faced, cylindrical rollers that span the width of the conveyor belt. An optic or pneumatic edge sensor sends an input signal to a pneumatic or electromechanical actuator that pivots the rollers. This creates an angle between the rollers and the belt. The wrap of the belt over the tracking rollers along with friction, belt tension and roller angle generates tracking forces in the plane of the belt that steer the belt back to the reference point.

1. Eckels Type

Eckels builds a variety of mechanical tracking devices in one, two and three roller configurations. The 3-roller version is the most common type used in our applications.

A finger or paddle actuated pneumatic sensor provides the input signal to a pneumatic actuator. The rollers are attached to a fixed pivot on one side of the conveyor and to a slide plate on the opposite side. The actuator moves the slide plate in response to the edge sensor's input. This moves the tracking rollers in a line parallel to the belt direction, which creates an angle between the rollers and the belt. The wrap of the belt over the tracking rollers steers the belt by traction forces, which minimizes belt edge damage and uneven stretching of the belt. The belt edge is constantly moving towards and then away from the sensor. The cycle repeats itself continuously.





Monofilament belts should be threaded through a three-roller device in an under-over-under pattern as shown above. Cotton belts are threaded in an over-under-over pattern.

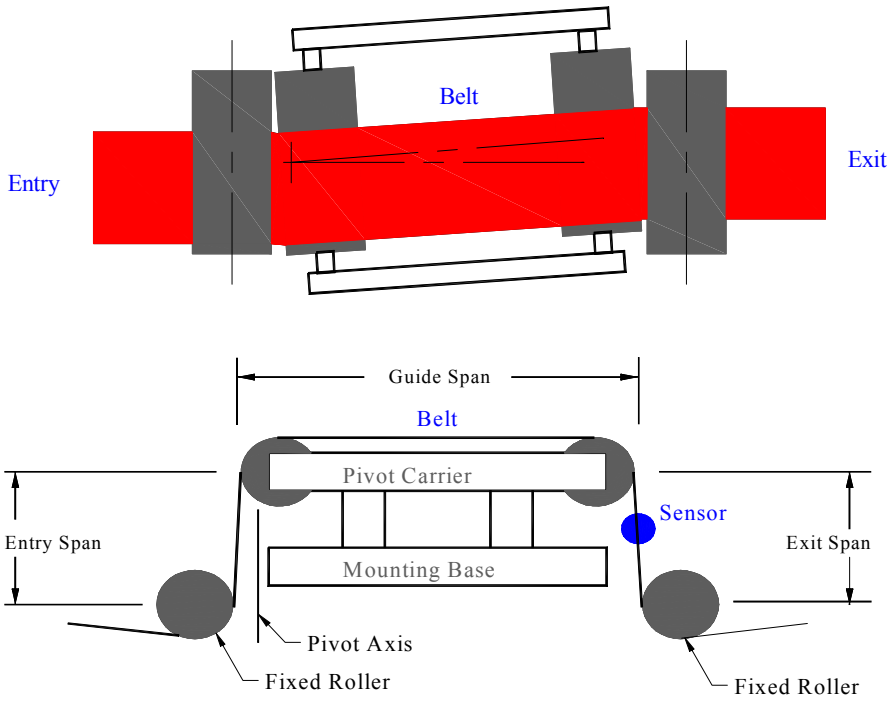
The mechanical tracker should be located on the return side before the tail pulley and as far as possible from other rollers that have any amount of wrap. This gains the greatest amount of leverage to move the belt. Multiple trackers are normally not necessary.

Generally, the **entry span** on a **two** or **three** roll tracker is 3' to 5' away from the upstream idle rollers. The exit span is a minimum of one belt width. If the belt is more than 5' wide, then these spans should be equal to one belt width.

2. Fife Type

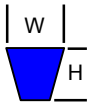
This device generally uses two guide rollers mounted on a carriage. The carriage pivots around a vertical line offset towards the entry roller. An optical, pneumatic or ultrasonic sensor detects the edge location and sends a signal to the electromechanical actuator. The carriage rotates about the offset point, which steers the belt back into the desired position. The edge sensor is located as close as possible to the exit roller. The guide assembly is located as close as possible to the point where belt position control is needed.

The belt enters and exits the carriage rollers at 90^0. Additional entry and exit idle rollers are required to return the belt to its original orientation. The **guide span** between the carriage rollers should be one half to one belt width. The **entry** and **exit spans** need to be approximately one belt width.



The Eckels and Fife types are shown only to illustrate the generic type of mechanical tracking device that they represent. Their use in this document is not intended to be an endorsement of these particular brands.

APPENDIX A

			Minimum Pulley Diameter, inches					
	Width	Height	Standard		Notched		Reverse Bend	
Profile	W, mm	H, mm	PVC	PU	PVC	PU	PVC	PU
	6	5	1.5	2.5	1	1.75	2.25	3.5
	8	5	2	3.5	1.5	2.5	3	5
	10	6	2.5	4	1.75	3	3.5	5.75
	12	5.5	3	5.5	2	4	4.25	8
	13	8	3	5.5	2	4	4.25	8
	15	8.5	4	7	3	5	5.75	10
	17	11	5	8	3.5	5.5	7.25	11.5
	22	11	6	9	4.25	6.5	8.75	13
	30	16	8	NA	5.5	NA	11.5	NA
	6	4	2.5	NA	NA	NA	2.5	NA
	13	10	5	NA	NA	NA	5	NA
	17	15	12	NA	NA	NA	12	NA
	up to 30	3	3	NA	NA	NA	3	NA
	21	5	4	NA	NA	NA	4	NA
	30	8	5	NA	NA	NA	5	NA

TECHNICAL GUIDELINE

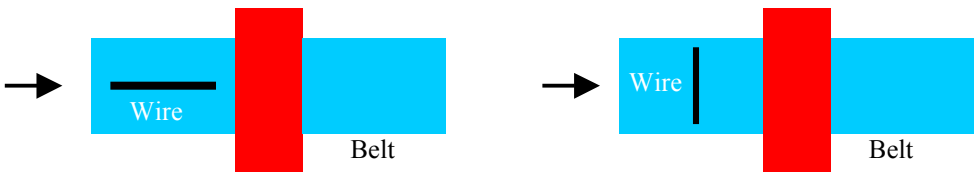
Metal Detectors

Metal detection devices are commonly found in the food processing and pharmaceutical industries. They are used at multiple points along a conveyor line to detect ferrous (steel and iron), non-ferrous (copper and aluminum) and stainless steel (non-magnetic) materials. Wire from sieves; fish hooks; staples from packaging; hair clips; copper wire from electrical repairs; and metal shavings from mixers, slicers, and maintenance repairs are examples of the items that can contaminate the product. All of these need to be detected and removed to ensure a product that is safe for consumer consumption.

Metal detectors create an electromagnetic field that is capable of detecting materials that are magnetic or electrically conductive. Even moist or wet products such as cheese, meat, fish, pickles and warm baked goods can be detected because their salt or acid content makes them electrically conductive. Stainless steel is difficult to detect because it is non-magnetic and is a poor conductor of electricity.

The sensitivity of a detector is defined as the diameter of a metal sphere of a specific metal that is just detectable in the center of the aperture. The geometric center is the least sensitive portion of the device with sensitivity increasing as you move towards the corners of the instrument. Metal spheres are used as a standard to determine the detector's sensitivity because they have a constant shape regardless of their orientation to the detector.

The orientation of a non-spherical particle or wire is a factor when the diameter of the wire is less than the spherical sensitivity of the detector. This is known as the orientation effect, which means that the wire is easier to detect when passing through in one orientation compared to another. For example, steel (ferrous) wire passing lengthwise is easier to detect than wire that is passing laterally. On the other hand, a copper (non-ferrous) wire is easier to detect when it is passing laterally than when it is moving lengthwise. If the wire's diameter is approximately 1/3 of the detector's sensitivity (metal sphere's diameter), then it is possible that the device will not detect it at all regardless of the wire's length. Detectors are normally operated at their highest possible sensitivity to minimize the orientation effect.



Ferrous-Easy to Detect
Nonferrous-Hard to Detect

Ferrous-Hard to Detect
Nonferrous-Easy to Detect

Antistatic belting can occasionally be detected even though the carbon fibers should be difficult to detect because they are non-ferrous and are running lengthwise. Since the fibers are uniformly spaced across the entire width of the belt, some pass through the more sensitive edges of the detector, which can cause them to be detected. Antistatic belting should not be used if at all possible.

The detector's performance can also be affected by the belt's splice as it passes through the aperture. The splice must be metal free and made to avoid product accumulation. An angled finger splice or our MD type splice using a nonconductive pin minimizes this effect. Metal fasteners or sewn or laced joints are not acceptable.

Flat, trough, ribbed, cleated and corrugated wall belts are acceptable, as are solid plastic chain belts. Round urethane belting running in grooved rollers can also be used. The conveyor belt needs to be clean and free from all metallic contaminants. All rollers should have a nonmetallic surface; otherwise, the metal will gradually be transferred to the belt.

A buildup of static charge can affect the detector and diminish its sensitivity, which causes false rejections. Since belting can generate static charges particularly when running over plastic slider beds or plastic coated rollers and pulleys, static dissipative arrangements other than antistatic belting need to be used to reduce or eliminate the static buildup. Static dissipative brushes, yarn or electronic devices are options that can be used.

Reference: Safeline Inc.
Cintex of America

TECHNICAL GUIDELINE

Static Electricity

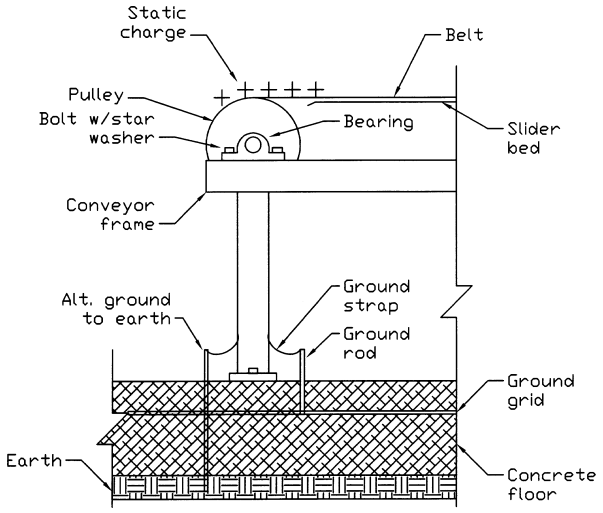
A belt conveyor continuously generates static electricity as the belt slides across the bed and separates from the pulleys. This rubbing and separation of two materials causes one of them to become positively charged and the other to become negatively charged. This process is referred to as the triboelectric effect.

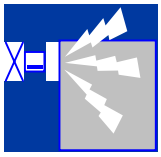
Polyurethane, PVC, nitrile and other synthetic belts are normally insulating materials that can accumulate a considerable electrostatic charge as they move around a conveyor. The effects of this can be seen as electric arcs jumping to the nearest grounded object (conveyor frame, human operator) and as product, especially thin plastic film or paper, that clings to or is repelled by the belt.

Environmental and operating conditions can also affect the generation of a static charge. Low humidity and belt speeds over 100 fpm will contribute to the creation of a charge whereas high humidity will lower the static charge potential.

Due to the possible shock hazard and problems with the product, methods of controlling or eliminating the static electricity need to be employed. There are active and passive ways to accomplish this. Ionizers fall into the active category. These generate a positive and negative ion field in the air surrounding the device, which cancels the charge on the conveyor. Fans are used to spread the ionized air over large areas.

Passive devices are the most common and least expensive ways to control static electricity. They can be devices that contact the belt such as brushes, tinsel, bare wire, conductive string, or metal or carbon coated fibers or they can be the belt itself. All of these methods are worthless, however, if they are not properly **bonded** to a reliable **grounding path**. A typical grounding path goes from a steel pulley through its shaft to the bearings to the steel support frame to a copper grounding strap to a steel rod that is attached to the grounding grid embedded in the concrete floor. An alternative is to have the rod extend in to the ground down to the water table. The key to a reliable path is the bonding of the elements in that path to each other. This means that conductive grease is used in the bearings, bolted connections use star washers to break through paint, and all connections are clean and free of rust. If non-conductive elements are used anywhere in the path such as ordinary grease or non-metallic bushings, then a braided copper wire strap or similar arrangement needs to be used to jumper around that component.





As mentioned above, belting is often used to diminish the effects of static. Carbon fibers are woven into the fabric or carbon powder is dispersed throughout the covers to make the belting **anti-static**, **static dissipative** or **conductive**. The difference between these is the amount of resistance the belt provides to current flow. This is called resistivity, **R**, which is measured in ohms-cm. The four categories of resistivity are as follows:

Insulating	$R > 10^{14}$ ohms-cm
Anti-static	$10^{9} \leq R \leq 10^{14}$ ohms-cm
Static dissipative	$10^{5} < R < 10^{9}$ ohms-cm
Conductive	$R \leq 10^{5}$ ohms-cm

Anti-static material suppresses but does not totally eliminate the generation of static electricity. The resistivity of static dissipative materials is low enough to allow them to prevent any static build up. Conductive materials are used when you need to totally remove static build up. Again, these will only work if there is a grounding path that is properly bonded. The charge carrying elements (the fibers or powder) in the belting must be in contact with a pulley that is bonded to the grounding path.

Reference:

Physics, Hausmann and Slack
National Industrial Belting Association, NIBA
National Electrical Code

This guideline does not address and is not intended to address belt or conveying applications involving munitions or explosive dust or grain environments. Consult with the main office in these situations.

TECHNICAL GUIDELINE

Belt Cleaning

Conveyor belts move products that can leave residue ranging from dry powders to sticky icings and just about everything else in between. The proper application of a belt cleaning device or system will greatly enhance the belt's longevity.

Belt cleaning devices come in a variety of shapes and styles. They can be stationary or rotating scrapers, wipers or brushes; systems that produce a mist or spray of hot water or steam; or solvents that chemically remove the accumulation. The success or failure of the cleaning operation depends on the selection of a method that is best suited for the residue on the belt.

1. Stationary Scrapers, Wipers and Brushes

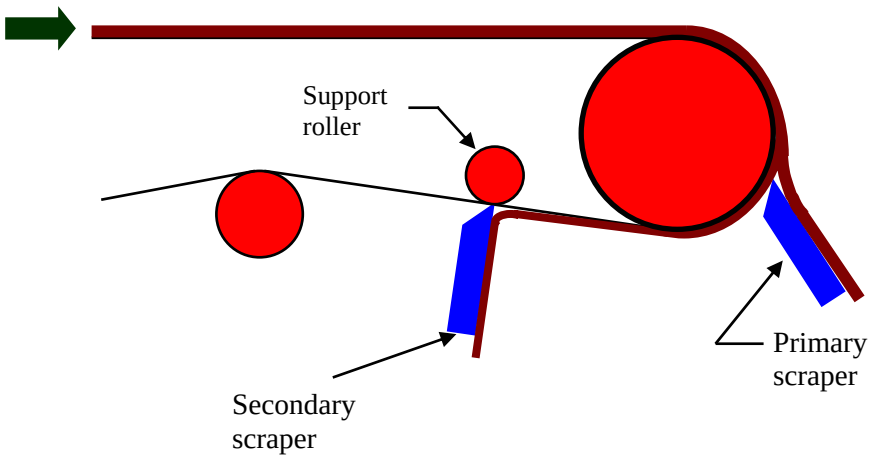
These are generally the simplest and least expensive methods of cleaning a belt; however, they are the kind that are frequently misapplied and cause the most damage to belting. A scraper, wiper or brush should only be in light contact with the belt's top or bottom cover.

A scraper is typically used to remove dough or cooled chocolate. A wiper is best used with fluid residue such as chocolate after an enrober. Brushes are used with dry granular or powdery material. Some situations to be aware of are as follows:

A. The action of a brush rubbing against the dry powder can generate static electricity. An anti-static belt needs to be considered in this application.
B. Using a scraper with granular or powdery residue will quickly wear the cover as the material is ground between the bar and belt.
C. A scraper can catch a mechanical splice. The scraper's bar should be pointed in the same direction that the belt is moving. A flexible mount is required to let the bar ride over the splice.

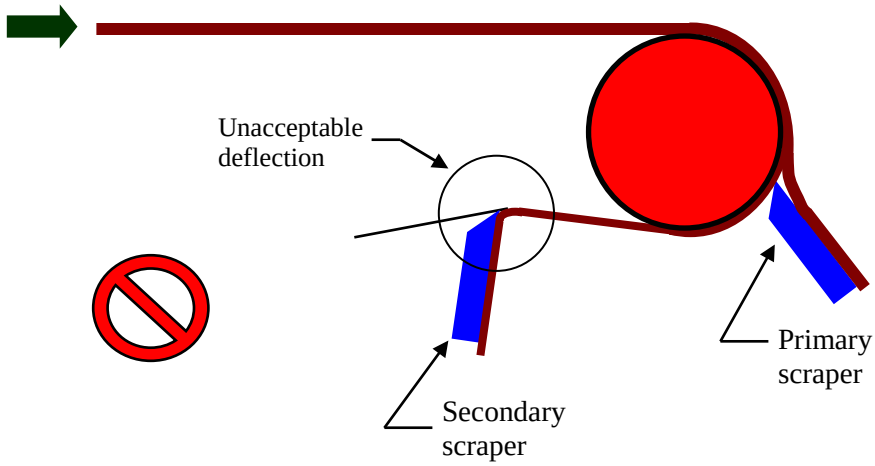
Make sure the cleaning device suits the application.

When scrapers are used, a primary and secondary scraper bar arrangement as shown below is the preferred configuration. The primary scraper is positioned so that it shaves the residue off the belt without gouging it. The secondary scraper removes the remaining material and is angled slightly downstream. It is important that the hardness of the scraper bar be less than the hardness of the cover to minimize belt wear. The bar needs to be the sacrificial element.

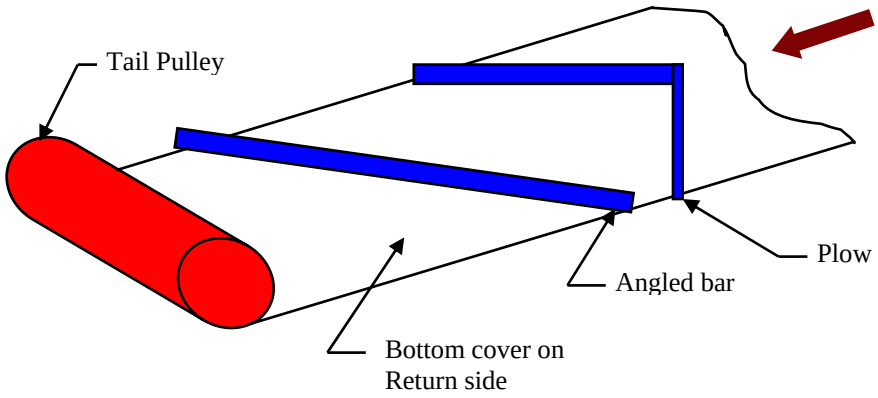


Doc. No. 03-02-004 2/07

A scraper bar that deflects the belt produces unnecessary stresses in the belt. Belt life will be shortened in terms of belt strength and top cover wear. As the deflection force increases, the scraper can also create a steering influence if it is not square to the belt and conveyor frame. This can negatively affect the tracking of the belt.



Scrapers, wipers or brushes can also be located on the inside of the return section just before the tail pulley to clean the bottom cover of the belt; however, they are in the form of a plow or an angled bar. The plow configuration is used when the belt moves in one direction only which is towards the plow. When the belt direction can be reversed, the angled bar arrangement is preferred. Again, only light contact should be applied with no deflection of the belt.

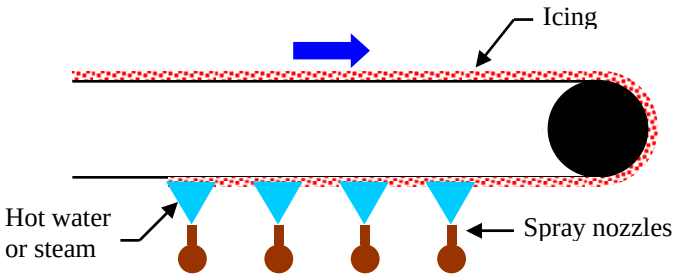


2. Rotating Scraper, Wipers and Brushes

Multiple scrapers, wipers or brushes can be mounted on a drum that rotates against the belt's direction of movement. They are applied in the same way as far as the type of residue that they are the best suited for. You will see them as a single roller at the head pulley or as a self contained device with integral belt support rollers. Their rotational speed is typically several times the rpm of the conveyor's head pulley.

3. Spray Systems

Spray cleaning systems that employ hot water or steam are found on more sophisticated icing or frosting conveyor lines. Banks of one to four spray headers with several nozzles per header are located on the return section beginning just after the head pulley. These dissolve the sugar-based residue and reduce it to a solution that can be drained away. The belt is kept clean and does not suffer from the abrasive action of sugar granules being ground into the cover by a scraper.



4. Chemical Agents

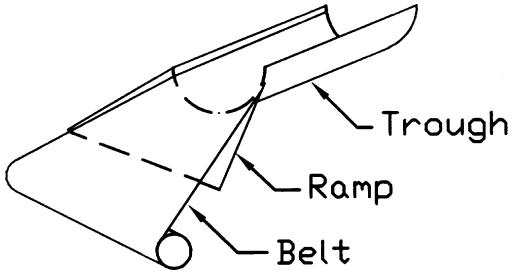
Wash down with a mild soap solution such as dish detergent and dry. Never use harsh solvents or chemicals for general cleaning. For extremely stubborn contaminants, any use of a solvent based cleaning agent is at the user's risk. Solvents such as Acetone, MEK, Toluene, etc. can be damaging to many belt types and will void all warranties. Any unwarranted use of a solvent should be in such manner as to apply very sparingly with a cloth. Never pour or drip such agents onto the belt! After removal of the contaminant a final wash down with a mild soap solution and drying should then be performed.

TECHNICAL GUIDELINE

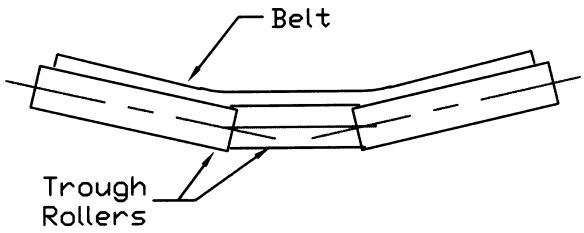
Trough Conveyors

Belt conveyors that carry bulk material such as shredded cheese, crushed cookies, cereals and similar products are limited in their conveying capacity, in part, because the belt lies flat on the conveyor. Changing from a flat to a trough profile increases the conveyor's capacity and aids material containment. Two ways to achieve this profile are to have the belt slide through a formed metal trough or gutter that has flared ends (ramps) or to have the belt move over trough rollers. These usually consist of two or three rollers in a set with the outer rollers angled at 20° or 35° to the horizontal center roller.

Formed Trough Method

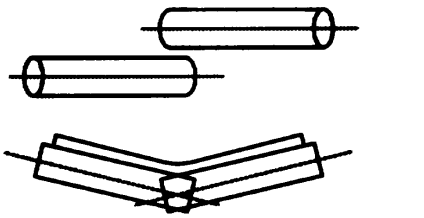


Roller Method

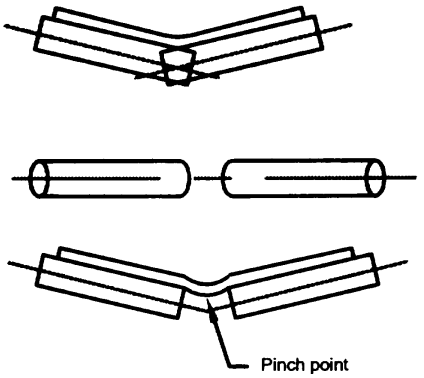


Multifilament or spun belting is generally chosen for trough applications. They have the lateral flexibility to retain contact with the center roller when the belt is empty and the lateral stiffness to support the load and bridge the roller gap when the belt is fully loaded. Without this, the belt will wander from side to side, which damages the belt's edges. Monofilament belts are typically is too stiff laterally. If the belt is too flexible, it may crease at the gap between rollers. This can be avoided by offsetting a trough idler in a two-roller arrangement or the center roller in a three-roller configuration with thin or flexible belts.

Two Roller Arrangement

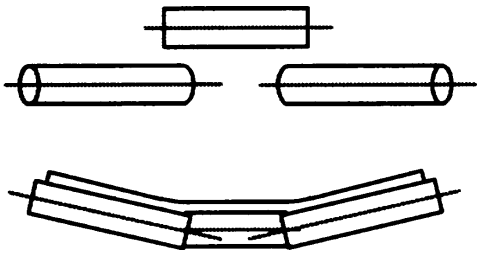


Recommended

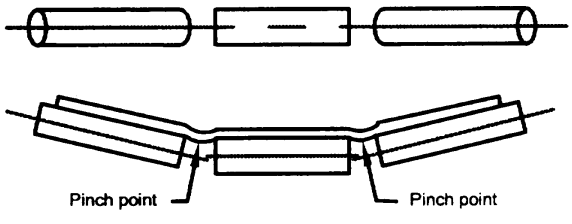


Not recommended

Three Roller Arrangement



Recommended



Not recommended

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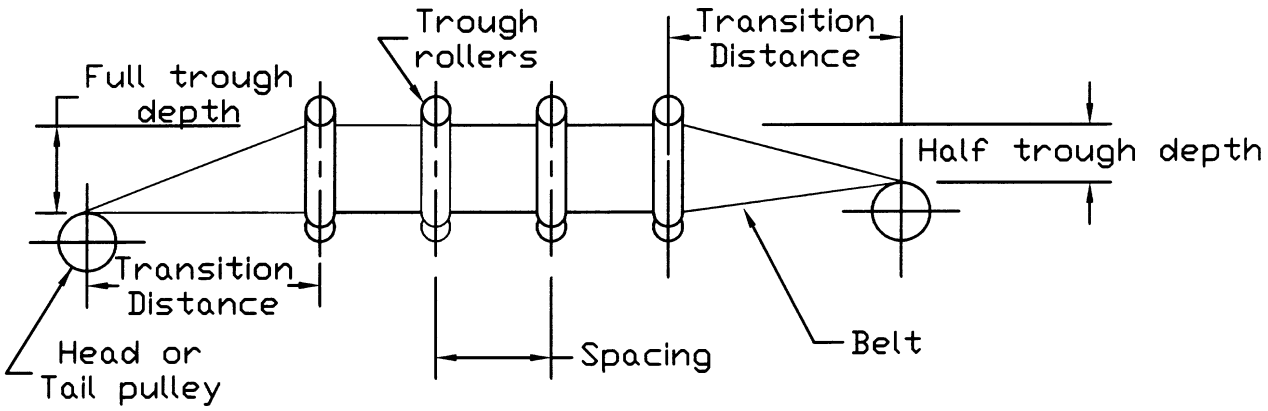
Lateral flexibility can also be accomplished by making a one-ply slit in the bottom of a multiple ply belt. This is done along the length of the belt above the junction of the rollers.

The distance from the terminal pulleys (head and tail pulley) to the formed trough or adjacent trough roller must be set at a certain distance to obtain a smooth and gradual transition. The recommended transition distances shown below are for trough rollers but can be used with a formed trough as well. The values depend on the belt width and also the position of the terminal pulley relative to the rollers. The top of the pulley can be placed even with the bottom of the trough or it can be positioned up to half the trough's depth. Stresses in the belt's edge will significantly increase if the transition is too short. This can permanently stretch the belt, which creates tracking problems and decreases the belt's service life.



	Transition Distance, ft.	
Trough Idler Angle	Full trough	Half trough
20	1.6 x belt width	0.9 x belt width
35	3.2 x belt width	1.6 x belt width

The belt must also be adequately supported on the carrying side of the conveyor. This is usually not an issue with a formed trough but it is a primary design consideration when trough rollers are used. These are based on loads up to 100#/ft^3 load.

Belt Width, in.	18	24 - 30	36 - 42	48	54 - 60	72
Trough Roller spacing, ft.	5.0	4.5	4.25	4.0	3.75	3.5

Reference: Belt Conveyors for Bulk Materials, CEMA

The determination of the proper belt length is important to the successful operation of equipment in a conveyor or power transmission application. The characteristics of the belt and the intended operation of the machine are factors that need to be considered.

The customer's operating criteria need to be known. The take-up may need to be positioned at a specific initial location for installation or maintenance reasons. Endless belts that are too short may be impossible to install if there is insufficient travel in the take-up. Belts that are too long may not provide acceptable service life if they stretch beyond the take-up's limits earlier than expected.

Belt length can be established based on the physical parameters of the equipment or on the measurement of an existing belt that is to be replaced. Initial take-up position must be known particularly when measuring an existing belt that has stretched beyond its installed length. It is recommended that the minimum and maximum lengths be measured on the machine.

Pitch length is the distance along the pitch line or neutral axis of the belt material. When a belt is placed on a flat surface as shown in Fig. 1, there are no tensile or compressive forces in the top surface, pitch line or bottom surface. The lengths are identical. In order to join the ends, the material has to be curved to accomplish the splice, Fig. 2. This places the outer surface in tension and the inner surface in compression. The outside becomes longer as it is stretched whereas the inside becomes shorter as it is compressed. The pitch line has no longitudinal force acting on it so the length is unchanged.

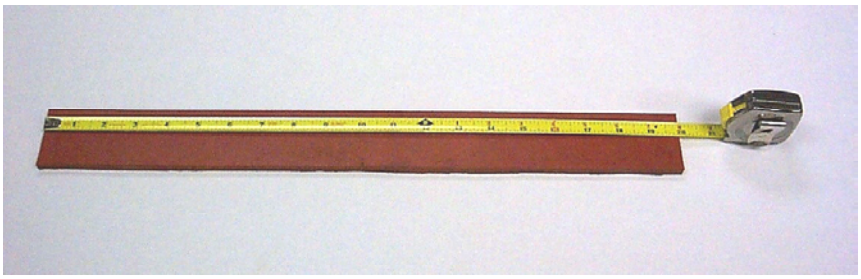


Fig. 1

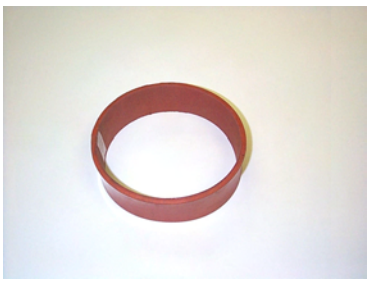


Fig. 2

This effect is more pronounced as belt thickness increases. The difference between the outer and inner lengths is 5/16" for a belt that is 0.050" thick. The difference is over 1-1/2" for a belt that is 0.250" thick. See formula 3.

Endless, flat belts are manufactured based on the **inner** circumference or length of the belt. This is especially important when the belt has significant thickness. The best way to determine the inner length is to place the belt on an adjustable fixture with a built-in scale, Fig. 3. A preset amount of tension ensures that repeatable and accurate measurements are obtained. If a fixture is not available, then the procedures described below and shown in Figs. 4 or 5 may be used.

Note: Orders and requests must specify "pitch length" when measuring in accordance with Fig. 5.

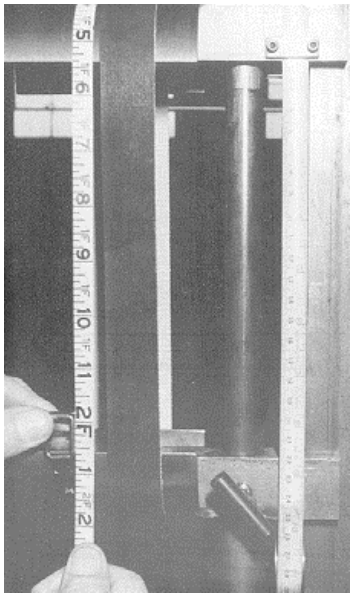


Fig. 3 (Fixture Method)

Fig. 4 (Alternate Method)

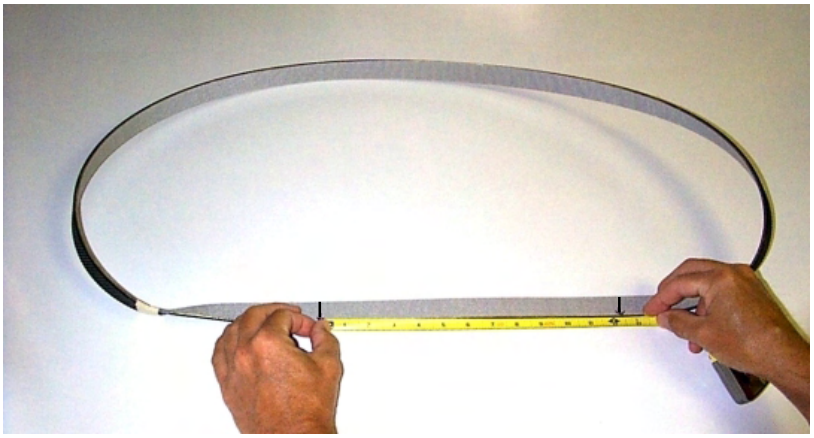


Fig. 5 (Alternate Method)

Measuring Existing Belts for Replacement

A. Belt on the machine

1. Mark a starting point on a flat section of the belt run.
2. Run the marked point forward the farthest extent of the flat run until it just reaches a pulley or bend.
3. Place a tape measure on the mark and measure from it as far as possible within the flat section. Record this measurement and mark the belt at this point.
4. Repeat steps 2 and 3 by starting and stopping the conveyor until you reach the original mark. Add up the measurements for the total belt length.
5. Now adjust the length for the take-up amount. Determine from the customer where the take-up's initial position will be and allow for approximately 0.4% of belt length for inward movement to facilitate installation.
6. If the customer wants the take-up retracted, then measure the distance from the center of the pulley at its current position to its center at the new position. For 180° of wrap, double this distance and subtract it from the measured length. This accounts for the over and under passage of the belt. See formula 5.

B. Belt off the machine

1. Mark a starting point on the inside (bottom) of the belt.
2. Place a tape measure on the mark and measure around the belt back to the starting point.
   A. If this is done as a continuous measurement on a circular belt as in Fig. 4, then the measurement is the inner length.
   B. If this is done in segments on flat sections of belt as in Fig. 5, then the measurement is pitch length. Calculate the inner length per formula 4.
3. Make any adjustments for take-up movement.

Data

Large Pulley Diameter **D** = _____ inches

Center-to-center Distance **C** = _____ inches

Small Pulley Diameter **d** = _____ inches

Belt Thickness **t** = _____ inches

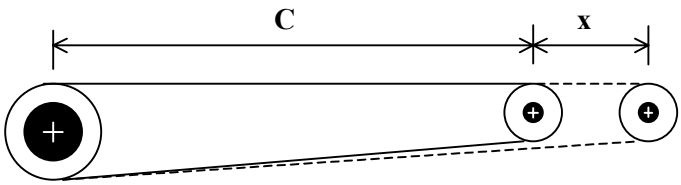
Outside Belt Length **Lo** = _____ inches

Inside Belt Length **Li** = _____ inches

Pitch Length **P.L.** = _____ inches

Stretched Belt Length **Ls** = _____ inches

Travel **x** = _____ inches



Formulas

1. **Length of a belt in a 2 pulley system when both pulleys are about the same size.**
   Belt length = $L = 2C + 1.57 (D + d)$

2. **Length of a belt in a 2-pulley system when one pulley is 3 or more times larger.**
   Belt length = $L = 2C + 1.57 (D + d) + [(D - d)^2 / 4C]$

3. **Relationship between outside and inside length when the belt thickness and one length is known.**
   $Li = Lo - 6.28t$

4. **Relationship between pitch length and the inside length when the belt thickness is known.**
   $Li = P.L. - 3.14t$

5. **Correction for belt travel. (180° wrap on pulley)**
   Belt length = $L = Ls - 2x$

TECHNICAL GUIDELINE

Shaft Deflection

Conveyor and power transmission belts can exert significant forces on drums, rollers and pulleys. Even though the supporting shafts are designed to accommodate some deflection, excessive deflection can reduce the life of the bearings and shaft, as well as the belt. Bearings and shafts need to be able to withstand the operating tension of the belt.

As the belt passes over a shaft, belt tension causes the shaft to bend, which creates a concave profile shown in Fig. 1. This puts the center of the belt in compression, which can interfere with the proper tracking of the belt. In extreme cases, the center of the belt can buckle or fold.

Deflection can be a problem with plastic nosebars or rollers. Plastic rollers or shafts have lower strength than steel or aluminum and will deflect more than comparably sized metallic components. Heat caused by belt friction and other sources will have a more noticeable affect on the strength of plastic rollers than on steel or aluminum rollers.

To measure the amount of deflection, place a straight edge across the edges of a **non-rotating** shaft with normal operating belt tension on it, Fig. 2. Measure the distance from the center of the straight edge to the center of the shaft. This measurement should be in the range of 0.010”/ft – 0.020”/ft of shaft length.

The formulas on the next page allow you to calculate the maximum allowable deflection if you know the shaft or roller material and construction and other physical data.

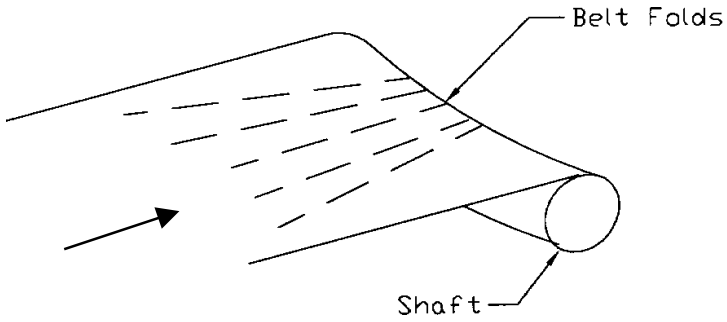


Fig. 1

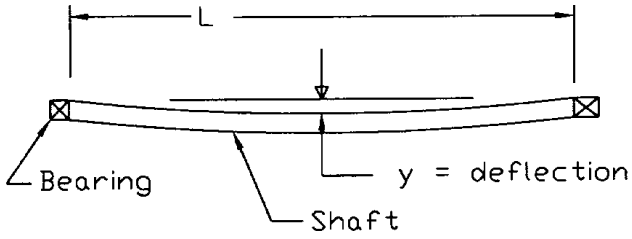


Fig. 2

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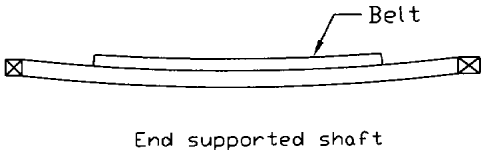
Data

Shaft/drum material	___ Steel ___ Aluminum ___ Plastic
Shaft/drum outside diameter	**D** = _____ inches
Shaft/drum inside diameter	**d** = _____ inches
Shaft/drum length	**L** = _____ inches
Deflection	**Y** = _____ inches
Tension PIW	**T** = _____ lbs/in of belt width
Modulus of elasticity	**E** = 30 (10^6) psi for steel = 10 (10^6) psi for aluminum = 45 (10^4) psi for plastics [approximate-actual value can range from 24 (10^4) psi to 17 (10^5) psi]

Formulas

1. **Solid, end supported shaft**

$$Y = (0.265)\,(T / E)\,(L / D)^4 = \_\_\_\_\_ \text{ inches}$$



2. **Solid, cantilevered shaft**

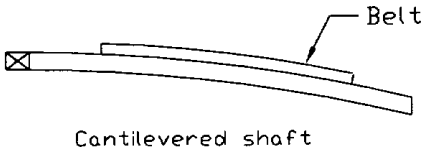
$$Y = (2.546)\,(T / E)\,(L / D)^4 = \_\_\_\_\_ \text{ inches}$$

3. **Cylindrical, end supported drum**

$$Y = (0.265)\,(T / E)\,[L^4 / (D^4 - d^4)] = \_\_\_\_\_ \text{ inches}$$

4. **Cylindrical, cantilevered shaft drum**

$$Y = (2.546)\,(T / E)\,[L^4 / (D^4 - d^4)] = \_\_\_\_\_ \text{ inches}$$



Calculation

1. Select a modulus of elasticity, **E**, based on the shaft or roller material.
2. Calculate the deflection, **Y**, with the known belt tension and shaft or roller parameters.
3. If **Y** exceeds the recommended range of 0.010”/ft – 0.0.20”/ft of shaft length, then **L** needs to be decreased by adding an intermediate bearing, **D** needs to be increased or the shaft material needs to be changed to increase **E**.
4. Recalculate **Y** based on the changes made to be sure the deflection is within the prescribed range.

This calculation is intended to be a general guide to the amount of deflection that can be expected and is not intended to be a substitute for the conveyor manufacturer’s engineering design calculations.

TECHNICAL GUIDELINE

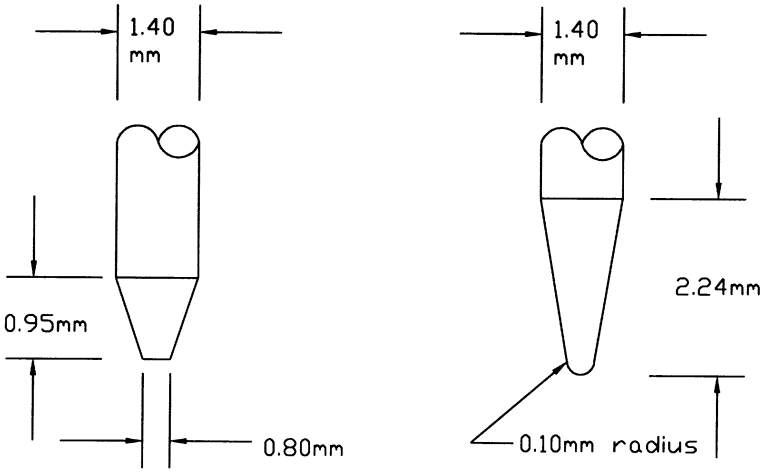
Durometer – Shore A, B, C and D Hardness

HARD
SOFT
Shore A

Plastics, metals and other materials are available in a wide range of physical and chemical properties. This makes it difficult to determine which ones are suitable for an application unless they are evaluated against an established standard. Knowledge of the material's hardness is one way to categorize and rank it versus other materials.

A durometer is an instrument used to determine the indentation hardness of materials ranging from soft vulcanized rubber to some rigid plastics. Shore Instruments, which is now a division of Instron, originally developed an instrument that can determine the hardness of these types of materials. The instrument's scales range from **A** for soft material through **B** and **C** to **D** for the rigid and harder plastics. Scales **A** and **D** are the most common. Rubber, nitrile, neoprene, butyl, polyurethane, PVC, polyethylene, silicone and other elastomers typically fall on the **A** scale. Within each range, the scale goes from **0** for the softest material to **100** for the hardest material. For example, a Shore 20 A material is softer than a Shore 90 A. Similarly, a Shore 90 A product is softer than a Shore 40 D product.

The durometer has an indentor or rod that is pressed against the material with a known amount of force. The shape of the indentor and the applied force change depending upon the scale (A, B, C or D) that is used. Scales A and B use a spring that applies 1.81 lbs. of force. Scales C and D use a spring that applies 10 lbs. Indentors are shown below.



An indicating device on the durometer shows the amount of extension of the indentor into the material. The scale graduations range from zero for the full, 2.50mm extension of the indentor to 100 for zero extension. The farther the probe can be extended into the material with a constant applied force, the softer the material is. On each scale, zero corresponds to the softest material whereas 100 corresponds to the hardest material.

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The temperature at which the measurements are made may have a significant effect on the results. Measurements should be made with the durometer and test specimens at 73.4^0F +/- 3.6^0F. Higher or lower temperatures can affect the materials hardness. Accurate comparisons can only be made on specimens tested at the same temperature.

Test specimens should have a minimum thickness of ¼". Materials that are thinner than this can be plied up to obtain a representative reading.

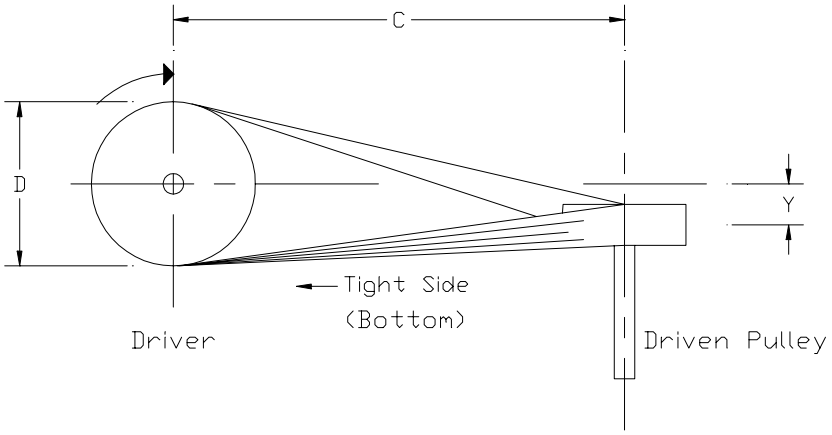
Additional information can be found in American Society for Testing and Materials (ASTM) Standard Test Method D2240.

TECHNICAL GUIDELINE

Quarter Turn Drives

Power transmission pulleys on conveyors, pumps, fans and other machinery are generally arranged so that the pulleys are in the same plane. The shafts that they are mounted on are parallel to each other. There can be design constraints, however, that require the flat, round or V drive belt to make a quarter turn to drive pulleys that are 90º to each other. As an example, a belt on a pulley mounted on a horizontal motor shaft may be required to drive a pulley mounted on a vertical spindle or mixer shaft. The belt is rotated 90º to make a quarter turn.

The illustration below shows a quarter turn drive and the dimensions that are recommended to optimize belt life and ensure reliable operation of the drive. The direction of rotation needs to be as shown so that the tight side of the drive is on the bottom. Deep groove pulleys should be used with V belts. Round belts need to have pulley grooves that match the belt's diameter. If ridges appear on the surface of V or round belts, then the center distance, C, or the offset dimension, Y, may not meet the recommendations.



	Minimum Center Distance, C, in.									
	Belt width, W, in.									
D, in.	0.125	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.250	1.500
4	23	23	24	25	25	26	27	28	29	30
5	28	29	30	30	31	32	32	33	34	36
6	34	34	35	36	36	37	38	39	40	41
7	39	40	41	41	42	43	43	44	45	47
8	45	45	46	47	47	48	49	50	51	52
9	50	51	52	52	53	54	54	55	56	58
10	56	56	57	58	58	59	60	61	62	63
12	67	67	68	69	69	70	71	72	73	74
14	78	78	79	80	80	81	82	83	84	85
16	89	89	90	91	91	92	93	94	95	96

C, in.	20	30	40	50	60	70	80	90	100	120
Y, in.	0.20	0.20	0.40	0.40	0.50	0.50	0.50	0.75	1.00	1.50

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C = 5.5 (D + W) where C = center distance, inches
D = drive pulley diameter, inches
W = belt width, inches

Reference:

Mark's Standard Handbook
Gates' Heavy Duty V-Belt Design Manual
Dayco's Industrial V-Belt Drives Design Guide

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