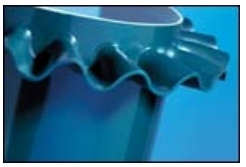
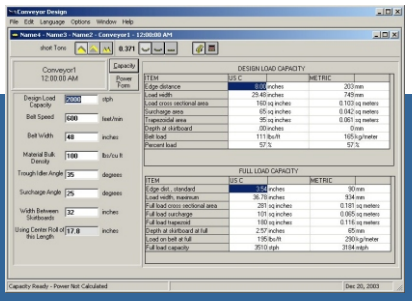
Rydell Industrial (Belting) Co

Rycon process and conveyor belts



Conveyor belt design data



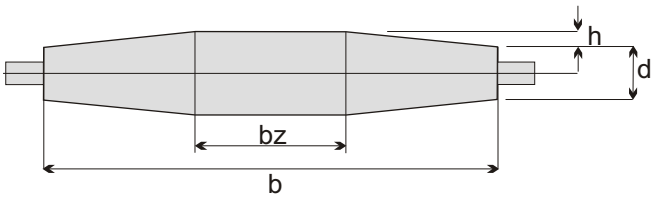
www.rydell.com.au

From world renowned manufacturers, Rydell now offers the most comprehensive range of conveyor belting available to satisfy all industry requirements.

The perfect conveyor - begins with the correct design

Crowning Specifications

We suggest the following crowning be applied to conveyor drive drums to assist belt tracking



Step 1: Calculate crowning height (h)

Drum dia (mm)	<200	200-500	>500
Height h (mm)	1.0	1.5	2.0

Step 2: Calculate the cylindrical section (bz)

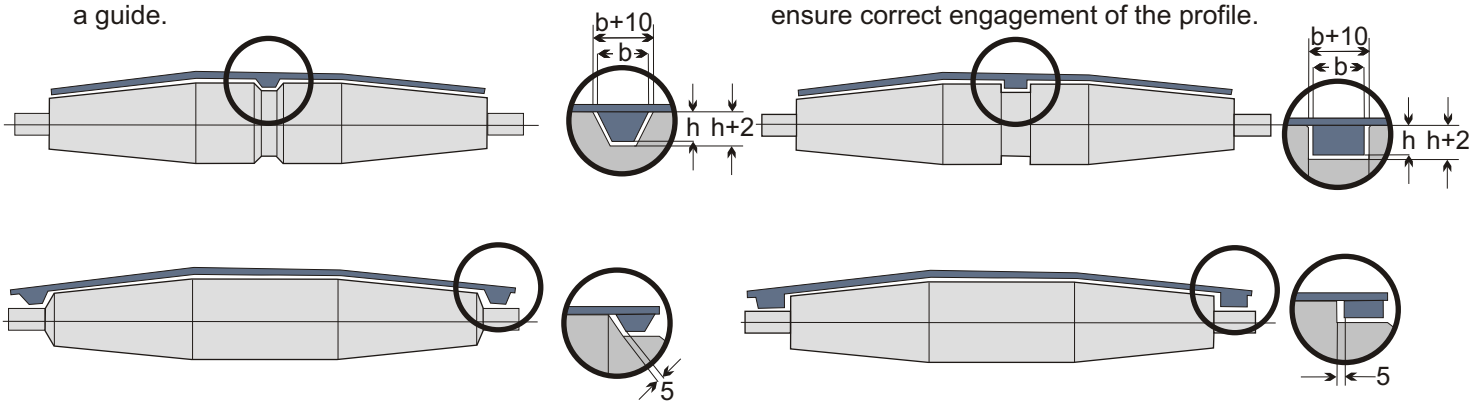
Width of drum b (mm)	<200	<1000	>1000
Cylindrical part bz	ISOR100	1/3 b	½ b

(ISO radius crown- refer Rydell Transmission brochure)

Design Criteria for Longitudinal Profiles

Longitudinal profiles can only absorb brief lateral forces. The tracking of the belt is influenced by the trapezoidal shape of the pulley. Note the clearances suggested as a guide.

The groove depth must be increased when working under high contamination conditions. As a rule, the groove width and depth in the deck should be less than the pulley to ensure correct engagement of the profile.



Nosebar Specifications

Knife edges that return on sharp angles experience increased tension and frictional heat. (Fig 1) For this we suggest rotating knife edges. The arc of contact of a knife edge should be as limited as possible. (Fig 2) Recommended radius should be 3-7 mm. Generally automatic tracking devices are employed on parallel knife edges. However, crowned knife edges have proven successful on shorter conveyors.(Fig 2) Crowned knife edges and automatic trackers should not be used in conjunction with each other.

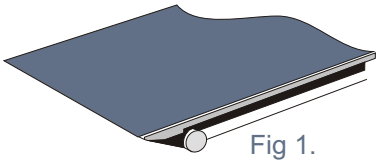


Fig 1.

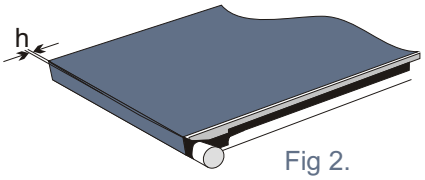


Fig 2.

Belt width (mm)	<500	501-1000	>1001
Dimension h (mm)	0.5	1.0	1.5

Useful Data

When you know..	Multiply by	To find..
millimeters	0.039	inches
meters	3.28	feet
grams	0.035	ounces
kilograms	2.202	pounds
celcius	1.8C + 32	fahrenheit
newtons	0.225	pound force
bar	14.5	psi
kilowatt	0.34	horsepower

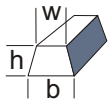
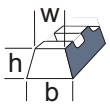
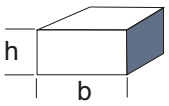
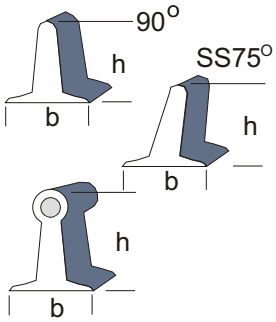
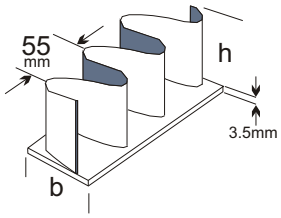
Belt length Formula $2 \times C + [1.57 \times (D+d)] + \frac{(D-d)^2}{4xC}$

Belt Tolerances

Belt Lengths		Belt Widths	
Up to 500mm	+/- 2mm	Up to 100mm	+/- 1mm
501-1000mm	+/- 4mm	101-250mm	+/- 2mm
1001-2000mm	+/- 8mm	251-500mm	+/- 3mm
2001-4000mm	+/- 14mm	501-1000mm	+/- 4mm
4001-8000mm	+/- 22mm	1001-1500mm	+/- 5mm
8001-16000mm	+/- 34mm	1501-2000mm	+/- 6mm
exceeding 16000mm	+/- 0.25%	2001-3000mm	+/- 7mm
		exceeding 3000mm	+/- 0.3%

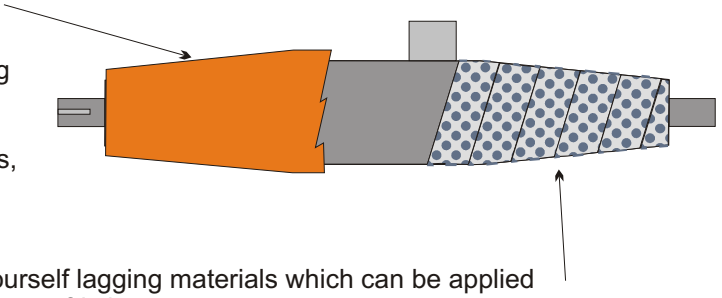
Ensuring the correct belt is applied to every application

Longitudinal and Lateral Profiles

Profile Shape	Part Number	Physical Dimensions			Minimum Pulley Diametre (mm)			Colors		Notes
		B	H	W	U/side	T/side	Lateral	Green	White	
	**V6**	6	4	3	40	50	40		X	Trapezoidal profiles are vulcanised to the top or bottom surfaces of conveyor belts for incline, side loading and diverting
	V8	8	5	4	50	60	50		X	
	V10	10	6	6	60	60	60	X	X	
	V13	13	8	9	80	80	80	X	X	
	V17	17	11	9	110	110	110	X	X	
	V22	22	15	11	150	150	150	X	X	
	V30	30	16	18	200	200	200	X	X	
	U10	10	6	6	60	60	60	trans	trans	Urethane is highly resistant to attack and hardening from greases and oils
	U13	13	8	9	80	80	80	trans	trans	
	U17	17	11	9	110	110	110	trans	trans	
	**VN10**	10	6	6	50		60	X	X	Notched profiles allow greater flexibility and smaller pulley diameters. Not recommended for reverse flexing.
	VN13	13	8	9	75		80	X	X	
	VN17	17	11	9	100		110	X	X	
	**Rectangle**	36	8					X X		Rectangular section for incline or as a location guide underneath the belt. **Can be cut to any size.**
	**T20**	20	20			350	100	X	X	Lateral profiles are vulcanised to the top cover of conveyor belts for incline applications. T cleats are 90 degrees SS cleats are 75 degrees Tube cleat is particularly suited to belts where damage to the product is a concern. Eg. Transport of apples, tomatoes etc.
	T25	30	25			450	100	X	X	
	T40	30	40				130	X	X	
	T40 TUBE	30	50				130	X	X	
	T50	30	50				150		X	
	T50SS	30	50				150		X	
	T60 TUBE	35	60				150		X	
	T75	35	75				180		X	
	T75SS	35	75				180		X	
	T100	35	100				220		X	
	**FSRC35**	55	35			100			X	Sidewall belts are suited for product containment for unit goods.
	FSRC55	55	55			120			X	
	FSRC85	55	85			180			X	

Pulley diameters are approximate only, and are based on ambient temperatures. Belt diameter should be added for extra life on profiles.

To increase the friction between the belt and the drive roller, we suggest it be covered with an abrasive resistant rubber covering, either applied hot or cold, depending on the application. This covering can be a variety of durometers and colours, including oil and grease resistant. For wet environments, it can be grooved to assist in the dissipation of moisture.



We also sell a variety of self adhesive do-it-yourself lagging materials which can be applied quickly and easily to many drive rollers to increase friction.

For every application there is a logical solution

Troubleshooting
Conveyor belt problems and cures.

Belt Stretches excessively

1. Tension on the belt is too high	1. Reduce tension to where the belt will run without slippage, increase arc of contact or lag roller
2. Conveyor under-belted	2. Replace with a stronger construction belt
3. Material build up on rollers	3. Clean all pulleys and rollers of contamination
4. Frozen rollers	4. Remove icing on the rollers to increase friction, consider lagging and grooving the drive roller face.

Belt slips and squeals

1. Belt too loose, insufficient take up	1. Increase arc of contact on drive roller, lag drive pulley, increase tension slightly
2. Conveyor under-belted	2. Replace with a heavier rated belt

Belt creeps to one side

1. Improper off centre belt loading	1. Load in direction of belt run, at belt speed on centre of belt
2. Frozen or jammed rollers	2. Lubricate rollers, improve maintenance, square rollers if necessary
3.Frame or structure crooked or not level.	3. Check alignment by stretching a string along frame edge, make correction, level frame
4. Material build up on pulleys / rollers	4. Clean and improve maintenance by mounting scrapers or other devices
5. Pulleys / rollers out of line	5. Recheck and square with a T-square against conveyor edge

Belt creeps to one side on head pulley

1. Head pulley or rollers out of line	1. Realign the pulley / rollers perpendicular to the belt centre line, or move (in direction of belt run) that pulley / roller end to which the belt has shifted

Belt wanders irregularly

1. Conveyor is over belted as belt is too stiff to properly run over pulley dia.	1. Replace with proper belt or use larger pulley diameter
2. Improper off centre loading	2. Correct loading procedure or use a belt with a V-guide

Belt fasteners pulling out

1. Incorrect size fastener used	1. Re-lace with proper size fasteners
2. Excessive tension on belt	2. Reduce tension to the point where the belt will run without slip, increase arc of contact or lag roller
3. Pulleys too small for belt thickness	3. Use larger pulley diameter or a thinner belt if practical
4. Belt tension too high caused by slippage	4. Increase arc of contact on drive roller to reduce belt tension and the effect of stiffness of the fastener joint or install an endless spliced belt

Belt splice failure

1. Pulleys too small	1. Increase the pulley diameter

Belt ply separation

1. Edge of belt worn or broken due to excessive rubbing	1. Check alignment of frame, pulleys and rollers (also see tracking)
2. Pulley dia. too small for belt	2. Increase pulley diameter, reduce tension
3. Damage by abrasives, acid, heat chemicals or oil	3. Select a belt resistant to these items
4. Excessive pulley crowning	4. Check crowning recommendations

Excessive bottom side wear

1. Belt slipping on drive pulley	1. Lag drive pulley, install snub roller for better wrap around pulley, increase tension slightly
2. Material build up on belt	2. Remove accumulation and install scraper to keep the underside clean
3. Frozen or dirty rollers	3. Lubricate rollers, improve maintenance

Excessive edge wear

1. Belt edges are folding up on conveyor guards	1. Use stiffer belt if practical, provide more lateral clearance, smooth rough areas on frame
2. Side loading causes belt to shift to opposite side and rub excessively	2. Improve by loading in direction of belt run, use a belt with a V-guide
3. Material build up on pulleys	3. Install scrapers to prevent build up, apply a belt with a V-guide

Belt cover softening and cracking

1. Damage by abrasives, acids, heat, chemicals or oil	1. Use belt resistant to these items
2. Pulley dia too small for belt thickness	2. Increase pulley diameter or use more flexible belt
3. Excessive belt tension	3. Reduce tension, lag drive pulley or provide self compensating take-up

For additional information or advice please contact your nearest Rydell branch.

www.rydell.com.au

VICTORIA	HEAD OFFICE	148-150 Cochranes Road Moorabbin 3189 Victoria	Phone (03) 9555 7922	Fax (03) 9553 3908	Email salesvic@rydell.com.au
	BRANCH	Factory 16/24 Kanowna Street Hastings 3915 Victoria	Phone (03) 5979 4447	Fax (03) 5979 4205	
SOUTH AUSTRALIA	BRANCH	17-19 Churchill Road North Dry Creek 5094 Sth Aust	Phone (08) 8162 9922	Fax (08) 8162 9933	Email salessa@rydell.com.au
WESTERN AUSTRALIA	BRANCH	Unit 3/75 Crocker Drive Malaga 6090 Western Australia	Phone (08) 9249 3777	Fax (08) 9249 3778	Email saleswa@rydell.com.au
NEW SOUTH WALES	BRANCH	Unit 2/10 Melissa Place Kings Park 2148 NSW	Phone (02) 9831 7300	Fax (02) 9831 8822	Email salesnsw@rydell.com.au
QUEENSLAND	BRANCH	12 Machinery Street Darra 4076 Queensland	Phone (07) 3375 6211	Fax (07) 3375 6042	Email salesqld@rydell.com.au