

INSTALLATION, OPERATING & MAINTENANCE MANUAL



**BELT TRACKING SYSTEM
3 / 5 ROLL TROUGHING FRAME**

PATENTED

Model Number	:	
Purchase Date	:	
Purchased From	:	
Installation Date	:	

Model number information can be found on the Label found on the Belt Tracking System pallet. This information will be helpful for any future inquiries or questions about Belt Tracking System replacement parts, specifications or troubleshooting.

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1. Disclaimer

Brelko Conveyor Products (Pty) Ltd hereby disclaims any liability for: damage due to contamination of the material; user's failure to inspect, maintain and take reasonable care of the equipment; injuries or damage resulting from use or application of this product contrary to instructions and specifications contained herein. Brelko's liability shall be limited to repair or replacement of equipment shown to be defective.

2. Safety Note

Observe all safety rules given herein along with owner and Government standards and regulations. Know and understand lockout/tag-out procedures as defined by National Standards Institutes, National Standard for Personnel Protection - Lockout/Tag-out of Energy Sources - Minimum Safety Requirements and Occupational Health and Safety.

3. The following symbols may be used in this manual:



Danger: Immediate hazards that will result in severe personal injury or death.



Warning: Hazards or unsafe practices that could result in personal injury.



Caution: Hazards or unsafe practices that could result in product or property damages.

Important:

Important: Instructions that must be followed to ensure proper installation/operation of equipment.

Note:

Note: General statements to assist the reader.

4. General Information

Brelko Belt Tracking Systems are designed to operate with minimum maintenance. However, to maintain superior performance some service is required. When the Belt Tracking System is installed a regular maintenance program should be set up. This program will ensure that the Belt Tracking System operates at optimal efficiency and problems can be identified and fixed before the Belt Tracking System stops working. All safety procedures for inspection of equipment (stationary or operating) must be observed. Belt Tracking Systems operate along the length of the conveyor and are in direct contact with the moving belt. Only visual observations can be made while the belt is running. Service tasks can be done only with the conveyor stopped and by observing the correct lockout/tag-out procedures.



BELT TRACKING SYSTEM 3 / 5 ROLL TROUGHING FRAME

PATENTED

APPLICATIONS

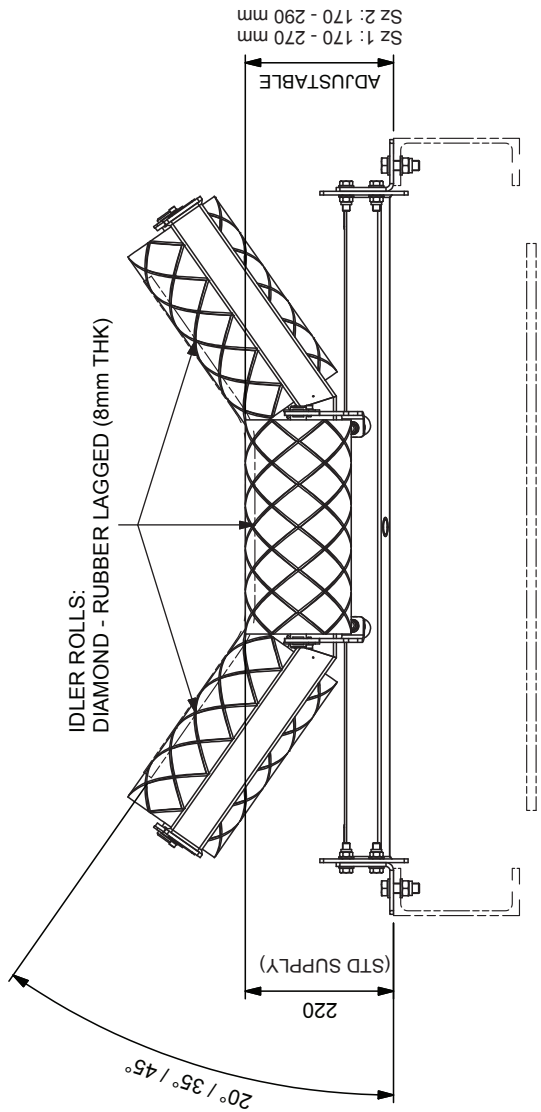
- Install the Belt Tracking System on the troughing side of the belt to centralise a misaligned belt, prevent spillage, decrease downtime, decrease maintenance and extend belt life.

FEATURES

- Easy installation.
- Low maintenance.
- Vibration free rolling action.
- Simple design.
- Operates in all conditions, except on reversing belts.
- Manufactured according to S.A.B.S. standards.
- Fully sealed construction of bearing housing prevents ingress of material into the bearing unit.
- Robust construction for longer life.

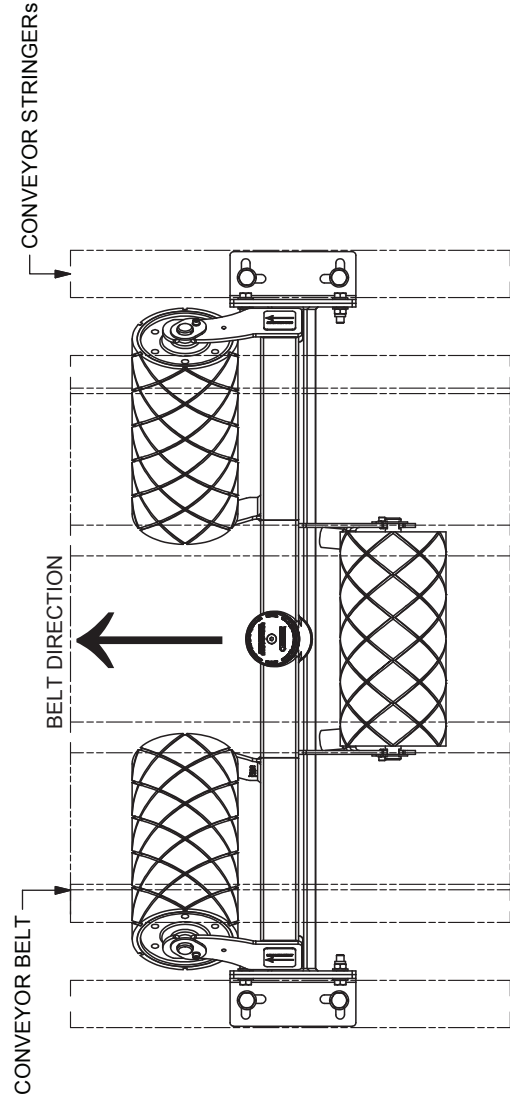
BELT TRACKING TROUGHING FRAME

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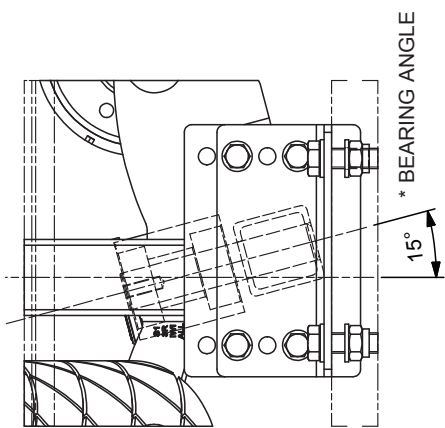
STANDARD CONSTRUCTION & FINISHES FOR BELT WIDTHS FROM:

400 - 2400



SIZE RANGE:
 - SIZE 1: 400 - 1200BW (3 ROLL)
 - SIZE 2: 1050 - 2400BW (3 & 5 ROLL)

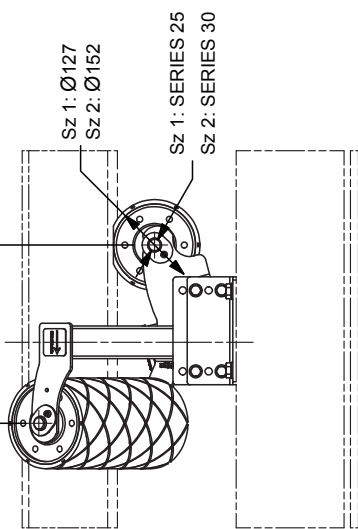
FEATURES & OPTIONS: BELT TRACKING TROUGHING FRAME (3-ROLL)



BELT DIRECTION



SIZE 1_3R: 330
 SIZE 2_3R: 415
 SIZE 2_5R: 430



DRW. No.

BTT-006

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5. Handling

5.1. Receiving the goods

Check that the shipment contains all the products specified in the delivery note. If the goods do not match the delivery note, if the goods show any transportation damage, **list it on the freight bill**. Describe the damage and the number of wrong or faulty goods, **and contact your supplier immediately**.

Do not use defective parts under any circumstances. Claims must be made within 8 days from the arrival of goods. The factory does not cover expenses caused by exchange of product when installation was not carried out according to factory instructions.

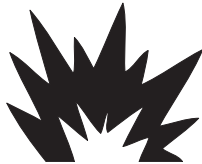
5.2. Work Safety

Always use protective gloves and clothing. Always use a lifeline and soft-sole footwear when work will be carried out on raised platforms. Before you move any equipment, check that it is securely attached to the lifting equipment. Always observe local safety regulations.



Before removing/installing equipment, lock out/tag out energy source to conveyor, and/or conveyor accessories.

Turn off and lock out/tag out energy source according to local standards.



If equipment will be installed in an enclosed area, test gas level or duct content before using a cutting torch or welding. Using a cutting torch or welding in an area with gas or dust may cause an explosion.

If using a cutting torch or welding machine, test atmosphere for gas level or dust content.

5.3. Handling

When equipment is unloaded from the transportation vehicle onto customer's platform, place it on boards spaced max 1m apart at a minimum of 5cm from the ground.

5.4. Storage

Equipment can be stored unpacked or in transportation packaging. Equipment must not be stored on top of one another, protect the equipment by storing it in a cool dry area on a flat surface.

5.5. Preparations for installing equipment

Before installation, check all measurements and any of the other geometric design

5.6. Recommended Tools List

BELT TRACKING TROUGHING SYSTEMS	
QTY	DESCRIPTION
2	EXTENSION CORD (30m MINIMUM)
1	PORT-A-PACK (OXY-ACETYLENE)
1	FLINT LIGHTER
1	ARC WELDER (INVERTER) 200AMP
1	CHIPPING HAMMER
1	ANGLE GRINDER
1	BABY GRINDER
1	5M TAPE MEASURE
1	NOZZLE CLEANER
1	SHIFTING SPANNER
1	PIPE WRENCH 650MM
1 SET	SOCKET SET 8MM TO 32MM
1	SOFT FACE HAMMER
2	SAFETY HARNESS
2	G-CLAMPS
1	JIMMY LEVER
1	TORCH (LED)
1 SET	SCREW DRIVER SET
1	CHALK LINE
1	SCRIBER
1	CENTRE PUNCH
1	HACK SAW
1	STANLEY KNIFE
1	4PD HAMMER

Recommended Tools List (continued...)

BELT TRACKING TROUGHING SYSTEMS	
QTY	DESCRIPTION
1	ANGLE FINDER
1	ELECTRIC DRILL
1 SET	ELECTRIC DRILL BITS
1	WELDING HELMET
1	FIRE EXTINGUISHER 9KG
1 SET	WELDING SPATS
1	WELDING APRON
1	FIRE BLANKET
1	SMALL BLUE TOOL BOX
1	MAGNETIC BASE DRILL
1 SET	12, 14, 18 SLUGGER BITS
2	FLAT RING SPANNER 13"
2	FLAT RING SPANNER 17"
2	FLAT RING SPANNER 19"
2	FLAT RING SPANNER 24"
2	FLAT RING SPANNER 30"
1	LONG NOSE PLIERS
1	PLIERS
1	BELT LIFTER
2	1 TON LEVER HOIST
4	1M NYLON SLING

6. Maintenance

Brelko Belt Tracking Systems are designed to operate with minimum maintenance. However, to maintain superior performance some service is required. When the Belt Tracking System(s) is installed a regular maintenance program should be set up. This program will ensure that the Belt Tracking System operates at optimal efficiency and problems can be identified and fixed before the Belt Tracking System stops working. All safety procedures for inspection of equipment (stationary or operating) must be observed. Service tasks can be done only with the conveyor stopped and by observing the correct lockout/tag-out procedures.

6.1. New Installation

After the new Belt Tracking System has run for a few days a visual inspection should be made to ensure the Belt Tracking System is performing properly. Make adjustments as needed.

6.2. Routine Visual Inspection (every 2~4 weeks)

A visual inspection of the Belt Tracking System and belt can determine:

- If the mounts are adjusted at the correct height for optimal roller contact;
- If the rollers are worn and needs to be replaced;
- If there is damage to the bearing or other components; and,
- If fugitive material is built up on the Belt Tracking System.

If any of the above conditions exist, a determination should be made on when the conveyor can be stopped for Belt Tracking Maintenance.

6.3. Routine Physical Inspection (every 6~8 weeks)

When the conveyor is not in operation and properly locked and tagged out perform a physical inspection of the Belt Tracking System performing the following tasks:

- Clean material build-up off of the Belt Tracking System.
- Closely inspect rollers for wear and any damage. Replace if needed.
- Ensure full roller to belt contact;
- Inspect the Belt Tracking System for damage;
- Inspect all fasteners for tightness and wear. Tighten or replace as needed.
- Replace any worn or damaged components i.e. bearings etc.
- Check the pressure of the Belt Tracking System on the belt. Adjust pressure if necessary.

When maintenance tasks are completed, test run the conveyor to ensure the Belt Tracking System is performing properly.

PARTS LIST - REF. DRW. No.: BTT-007

ITEM No.	DESCRIPTION	SIZE (mm)	BELT WIDTH (mm)	CODE
A.	Transom - Consisting of Spacer, Bolts, Nuts and Washers	60.3 SQR 76.2 SQR	400-1200 1050-2400	Specify belt width and height
B.	Idler Frame - Excluding Bearing Set.	60.3 SQR 76.2 SQR	400-1200 1050-2400	Specify belt width and height
C	Bearing set - Consisting of Deep Grooved Ball Bearing, Trust Bearing and Bearing Seal.	DIA 80mm DIA 110mm	400-1200 1050-2400	004-145-0001 004-145-0002
D	Idler Roll (Rubber Diamond Lagged)	Series 25 Series 30	400-1200 1050-2400	Specify belt width
F	Hardware Set - Including Bearing Spacer, Top Cap, Idler Roll Retaining Washers and locking Screws	Series 25 Series 30	400-1200 1050-2400	003-200-0030 003-200-0031

NOTE! Always quote belt width.

ASSEMBLY INSTRUCTIONS

- Referring to the parts list, check that the correct parts and quantities have been supplied for the model and belt width of Belt Tracking System ordered.
- Proceed with installation as per installation guide.

SURVEY and GUIDELINES

SURVEY

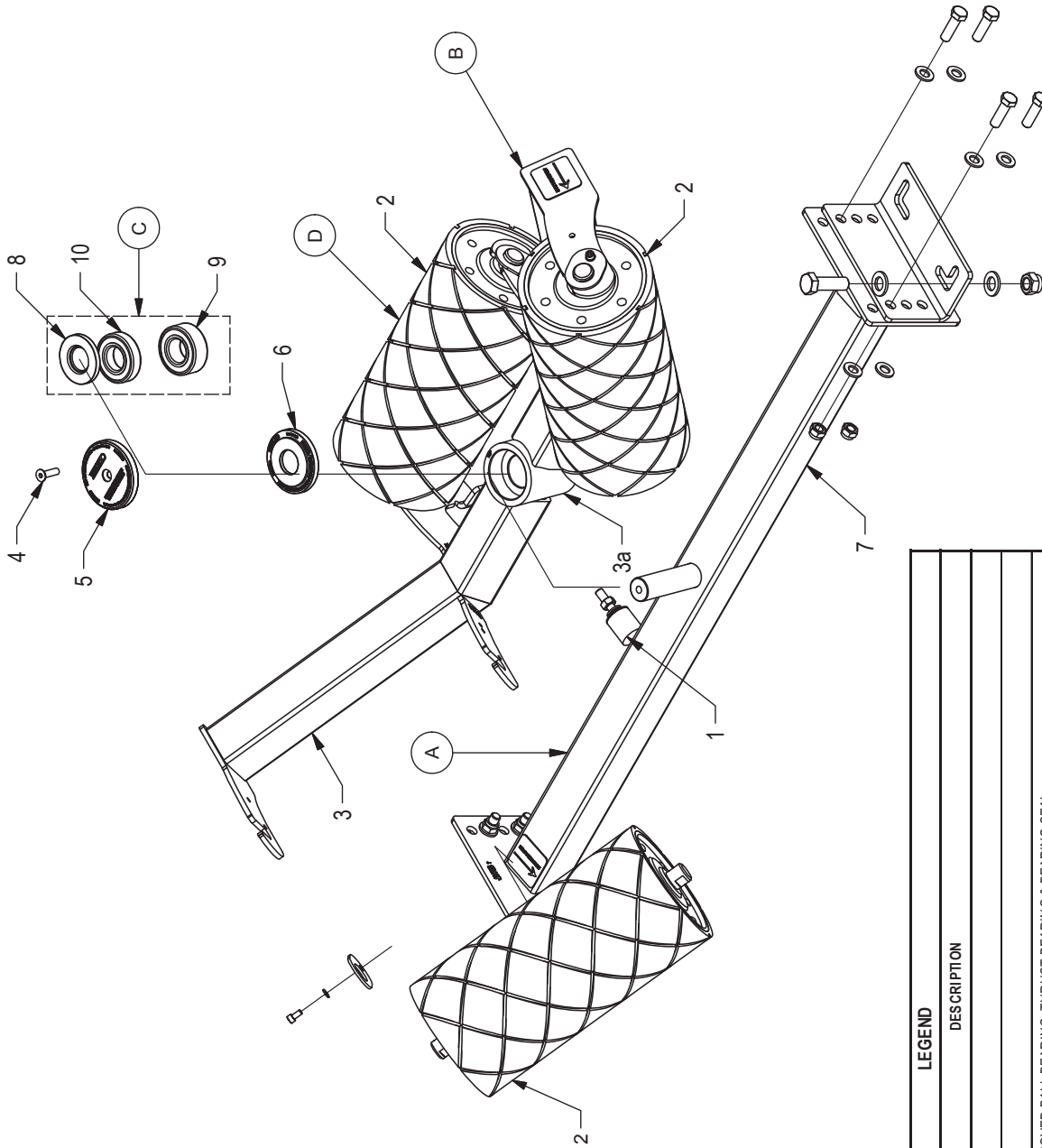
- Before installing the Belt Tracking System, carefully inspect the entire length of the conveyor belt. Identify areas of conveyor belt misalignment. Contributing factors include concave pulleys, where the centre of the pulley has collapsed, and uneven rubber wear on pulleys.
- Tell-tale marks indicate problem areas where a drifting conveyor belt has come into contact with the structure for instance, damaged drop brackets and structure.
- Tail, head and take-up pulleys identify areas of greatest damage caused by badly aligned belts.

GUIDELINES

- One correctly installed Belt Tracking System can control misalignment for about 30 metres of belt and need only be installed on areas where misalignment occurs.
- Always install the Belt Tracking System ahead of the problem area.
- To obtain maximum belt alignment, use the maximum face length of the Belt Tracking System. This ensures that you obtain the optimum working life from the Belt Tracking System.
- Insufficient traction between the belt centralising idler frame set and the belt leads to severe rubber wear. Although the Belt Tracking System will kick in and control the belt, there won't be enough tension to successfully centre the belt on the Belt Tracking System. This results in chafing of the Belt Tracking System rubber lagged rollers. By increasing the tension; the Belt Tracking System will centralise the belt and return to a state of equilibrium.

BELT TRACKING TROUGHING FRAME

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LEGEND	
COMPONENT ID	DESCRIPTION
A	TRANSOM ASSEMBLY
B	IDLER FRAME - EXCLUDING BEARING SET
C	BEARING SET - CONSISTING OF DEEP-GROOVED BALL BEARING, THRUST BEARING & BEARING SEAL
D	IDLER ROLL - DIAMOND-LAGGED RUBBER
F	HARDWARE SET - INCLUDING BEARING SPACER, TOP CAP, IDLER ROLL RETAINING WASHERS & LOCKING SCREWS

PARTS LIST: BELT TRACKING TROUGHING FRAME (3-ROLL)

DRW. No. BTT-007

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INSTALLATION GUIDE - REF. DRW. No.: BTT-008

1. After identifying the problem area on the load-carrying side of the belt, prepare to install the Belt Tracking System ahead of the problem area, ensuring that it is installed before transitional idlers and after loading chutes.
2. Position the Belt Tracking System in place of an existing idler set, before the problem area. For heavy laden belts, install the Belt Tracking System between two of the existing idler sets, before the problem area.
 - **Note:** The Belt Tracking System is direction sensitive and therefore has to be installed correctly. Each Belt Tracking System has "Belt Direction Labels" on the frame.
3. Bolt the Belt Tracking System on to the structure. Before tightening, ensure the Belt Tracking System is perpendicular to the structure. Once completed, tighten all bolts.
 - **Note:** Ensure all the rollers contact the belt.
4. Installation is now complete, start the conveyor belt to test the Belt Tracking System.
5. If the problem still persists, knock the existing standard troughing frames perpendicular to the structure before and after the Belt Tracking System.
6. Remove any other tracking devices in front of or behind the Belt Tracking System, as they will reduce or interfere with the performance of the Belt Tracking System.

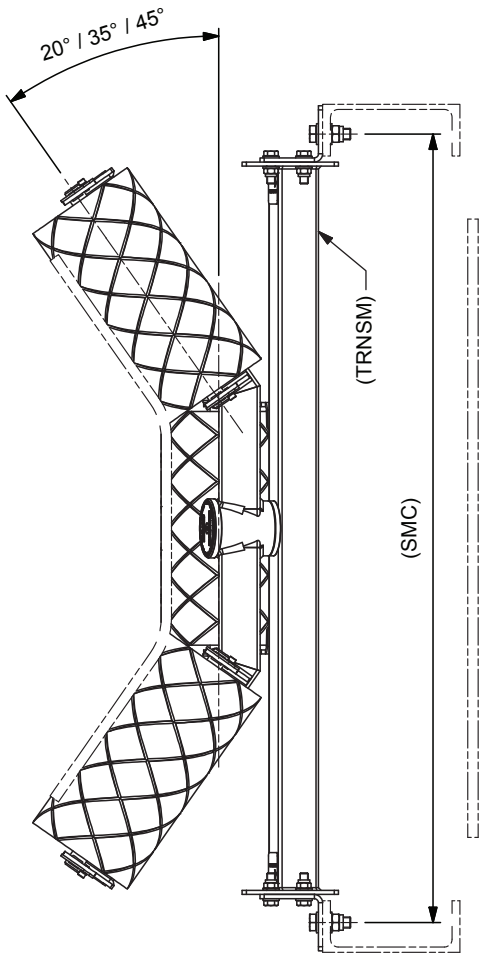
CAUTION!!!

This equipment should only be installed, operated & maintained by people competent and familiar with conveyor systems. Improper use or adjustment can result in serious personal injury or damage to equipment.

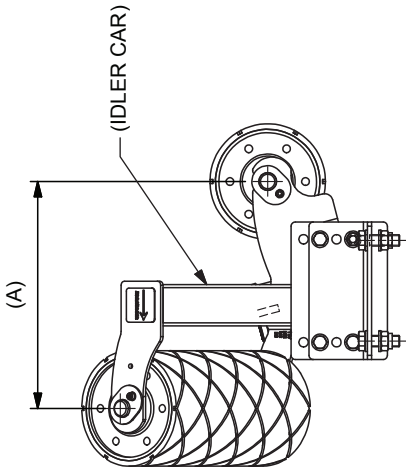
IF IN DOUBT ASK!!!

BELT TRACKING TROUGHING FRAME

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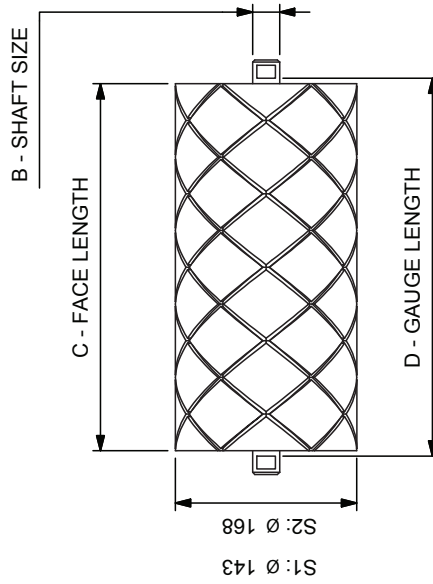


FRONT VIEW



SIDE VIEW

BELT TRACKER - TROUGHING FRAME - 3 ROLL														
BELT WIDTH	400	450	500	600	750	900	1050	1200	1350	1500	1650	1800	2100	2400
SIZE	1													
SMC	634	686	736	838	990	1144	1296	1448	SMC - "STRINGER MOUNTING CENTERS"					
A	330													
B	Ø25													
C	170	190	200	240	290	340	390	450	2					
D	180	200	210	250	300	350	400	460	415 (3R) / 430 (5R)					
TRNSM	60.3 SQR													
IDLR CAR	60.3 SQR													
SIZE	Ø 30													
SMC	1296	1448	1600	1752	1904	2058	2362	2668	SMC - "STRINGER MOUNTING CENTERS"					
A	76.2 SQR													
B	76.2 SQR													
C	390	450	500	560	610	660	765	870	76.2 SQR					
D	400	460	510	570	620	670	775	880	76.2 SQR					
TRNSM	76.2 SQR													
IDLR CAR	76.2 SQR													



IDLER ROLL
"DIAMOND-LAGGED"

INSTALLATION DETAIL: BELT TRACKING TROUGHING FRAME (3-ROLL)

DRW. No.

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7. **Bearing Replacement Guide - REF. DRW. BTT-007**

In order to replace the Bearing housing the following must be followed.

- 7.1. Remove the idler roller retaining washers (1) and the idler rollers (2) from the idler frame (3).
 - **Note:** This step must be done carefully to prevent misplacing or losing any components.
- 7.2. Remove the locking screw (4), top cap (5), idler frame (3) and bearing spacer (6) from the transom (7).
 - **Note:** This step must be done carefully to prevent misplacing or losing any components.
- 7.3. Remove the bearing seal (8), thrust bearing (9) and deep grooved ball bearing (10) from the bearing housing (3a).
- 7.4. Replace worn and/or damaged bearings and bearing seal with the new components.
- 7.5. Re-assemble the Belt Tracking System.
- 7.6. With reference to the installation guide continue with the installation.

CONVEYOR BELT & EQUIPMENT CHECK LIST

CUSTOMER DETAILS

Customer Name:		Contact Number:	
Attention:		Date of Inspection	
Inspected By		Brelko Representative	

CONVEYOR DIMENSIONS

Belt Number:		Material Carried:		Belt Speed:		
Belt Length:		Belt Width :		Troughing Angle:		
Top Cover Condition:			Bottom Cover Condition:			
Splice:	Yes	No	Clip Joint:	Yes	No	
Conveyor Running	Yes	No	Inspection Tags:	Yes	No	
Edge Damage:	Yes	No		Cover Strip:	Yes	No
Comments:						

HEAD END / HEAD CHUTE

Chute Condition:	Head Pulley Lagging:
Snub Pulley Lagging:	Build up:
Belt Movement:	
Comments:	

IDLER CHECK

Trough Idler Condition:	Return Idler Condition:
Troughing Frame Condition:	Return Frame Condition:
Comments:	

PRIMARY SCRAPER

Position Correct:	Yes	No	Type of Primary Scraper installed:				
<small>(Contact of Scraper Blade must be between 10 to 30 degrees, under the pulley horizontal line.)</small>							
Mounts firmly mounted:	Yes	No	All bolts, nuts tightened:	Yes	No		
Adequate Tensioning:	Yes	No	All Caps, Denso Tape in place:	Yes	No		
Housekeeping:							
Chute Material build up:							
Blade Wear:	Low	Medium	High	Cleaning:	Poor	Fair	Good
Comments:							

SECONDARY SCRAPER #1

Type / Model of Secondary Scraper Installed:							
Positioning Correct:							
<small>(Scraper blade must preferably be a minimum 100mm from pulley tangent.)</small>							
All Caps, Denso Tape in Place:	Yes	No	Mounts firmly mounted:	Yes	No		
All Bolts & Nuts Tightened:	Yes	No	Adequate tension/adjustment:	Yes	No		
Angle Correct Set:	Yes	No	Carrier Frame cut to size	Yes	No		
<small>Angle of scraper must be 90 degrees to the conveyor belt, dependant on conditions.</small>							
Chute / Material build up:	Yes	No	Housekeeping:				
Blade wear:	Low	Medium	High	Cleaning:	Poor	Fair	Good
Comments:							



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SECONDARY SCRAPER #2

Type / Model of Secondary Scraper Installed:																
Positioning Correct:																
Scraper blade must preferably be a minimum 100mm from pulley tangent.																
All Caps, Denso Tape in Place:			Yes		No		Mounts firmly mounted:			Yes		No				
All Bolts & Nuts Tightened:			Yes		No		Adequate tension/adjustment:			Yes		No				
Angle Correct Set:			Yes		No		Carrier Frame cut to size			Yes		No				
Angle of scraper must be 90 degrees to the conveyor belt, dependant on conditions.																
Chute / Material build up:			Yes		No		Housekeeping:									
Blade wear:			Low		Medium		High		Cleaning:		Poor		Fair		Good	
Comments:																

TAKE UP PULLEYS / COUNTERWEIGHT / PLOUGH

Type / Model of Plough Installed:													
Are Flat Return Idlers Installed:		(In front)		Yes		No		(Behind)		Yes		No	
Any excessive belt movement:		Yes		No		Adequate space for material to fall off of conveyor belt				Yes		No	
Is the Plough firmly mounted:		Yes		No		Is the Safety Chain firmly mounted and correctly adjusted:				Yes		No	
Is the Plough Free moving:		Yes		No		Is the entire Blade / Nose Piece in contact with the conveyor belt:				Yes		No	
Housekeeping:													
Comments:													

CONVEYOR BELT TRACKING / ALIGNMENT

Is the Belt Tracking centre:		Yes		No		Are there any Tracking Systems installed:			Troughing		Return		
Is there any visible damage to structure caused by poor belt tracking:						Yes			No				
Conveyor belt length:						Are the tracking systems correctly positioned:			Yes		No		
Are the tracking systems firmly mounted:			Yes		No		Are all bolts & nuts tightened:			Yes		No	
Are all Idlers in contact with the Belt - Adequate Tension on the system:						Yes		No		Housekeeping:			
Comments:													

LOADING / TRANSFER CHUTE

Chute Condition:		Poor		Fair		Good		Material loading in centre of conveyor belt:					
Dead Boxes:		Yes		No		Deflector Plates:		Yes		No		Drop Heights:	
Tail Pulley Condition		Good		Fair		Poor							
Comments:													

KEYSKIRTING®

Size of Keyskirt®:		1		2		3		4		Length of Keyskirt® Installed :			
Positioning of Keyskirt® :						Other Product used as Skirting		Yes		No		State	
Mounting Arrangement		Std.				Offset				Other			
All bolts & nuts securely fastened:				Yes		No		Housekeeping:					
Comments:													

FEEDBOOTS

Type of Feedboot installed:	Universal	Combination	Is the system correctly positioned:				Yes	No
			(System to be positioned centrally to the load area.)					
Drop Height:			Is the system securely mounted:				Yes	No
All Bolts & Nuts tightened:	Yes	No	Condition of Idlers:		Poor	Fair	Good	
Lead in and lead out Idlers in place:	Yes	No	Condition of UHMW Liners:		Low	Medium	High	
Housekeeping:								
Comments:								

HI - IMPACT SYSTEM

Type of Hi - Impact system installed :								
Is the system correctly positioned:		Yes	No	Drop heights:				
System to be positioned centrally to the load area.								
Is the system securely mounted:		Yes	No	All bolts & nuts tightened:		Yes	No	
Are all Idlers in contact with the belt:		Yes	No	Idler condition:		Poor	Fair	Good
BTA Condition:	Poor	Fair	Good	Are chains / D shackles in place & securely fastened:		Yes	No	
All Hardware in Good Condition:		Yes	No	Housekeeping:				
Comments:								

AIR CANNONS

Size of Air Cannon Installed:	5ltr	Quantity	10ltr	Quantity			
	25ltr	Quantity	50ltr	Quantity			
	100ltr	Quantity	200ltr	Quantity			
Is the Air Cannon securely fastened onto the structure:		Yes	No	Is an Air Lance installed:		Yes	No
Size of the Air Lance:		Are the Air Cannons correctly positioned:			Yes	No	
Power supply:		Air supply:					
Operating system:		Single timer	PLC	Manual push button		Sequential	
All Bolts & Nuts securely tightened:		Yes	No	All components in good order:		Yes	No
Distance between Air Cannon & Solenoid Valve:		Any Air Leaks in the Pipe Work:			No		
Is a Water Trap Installed:		Yes	No	Is a Lubricator installed:		Yes	No
Distance from Air Cannon:		Distance from Air Cannon:					
Are the safety / warning signs in place and visible:		Yes	No	Housekeeping:			
Comments:							

TAIL PULLEY / PLOUGH

Type / Model of Plough Installed:							
Are Flat Return Idlers installed:		(In front)	Yes	No	(Behind)	Yes	No
Any excessive belt movement:		Yes	No	Adequate space for material to fall off of conveyor belt:		Yes	No
Is the Plough firmly mounted:		Yes	No	Is the Safety Chain firmly mounted and correctly adjusted:		Yes	No
Is the Plough free moving:		Yes	No	Is the entire Blade / Nose Piece in contact with the conveyor belt:		Yes	No
Housekeeping:							
Comments:							

10. Trouble Shooting

Problem	Possible Cause	Possible Solution
Poor Tracking	Tracker belt contact pressure too low.	Increase belt contact pressure, refer to installation instructions.
	Tracker belt contact pressure too high.	Decrease belt contact pressure.
	Tracker installed in wrong direction.	Verify directional labels - refer to installation drawing.
	Tracker stoppers not correctly adjusted.	Adjust accordingly - refer to installation instructions.
	Belt not in contact with all idlers	Adjust Tracker to ensure all idlers are in full contact with the belt - refer to installation instructions.
Wear on Rollers / Roller failure	Belt not in contact with all idlers	Adjust Tracker to ensure all idlers are in full contact with the belt - refer to installation instructions.
	Belt contact pressure too high/low.	Adjust to correct pressure, refer to installation instructions.
No Frame Movement	Material build-up and ingress of material on frame or components.	Clean and remove.
	Bearing failure.	Repair or replace - refer installation instructions
	Belt contact pressure too high/low.	Adjust Tracker to ensure all idlers are in full contact with the belt - refer to installation instructions.
	Check Tracker and Belt troughing angle match	Replace Tracker with belt troughing angle.