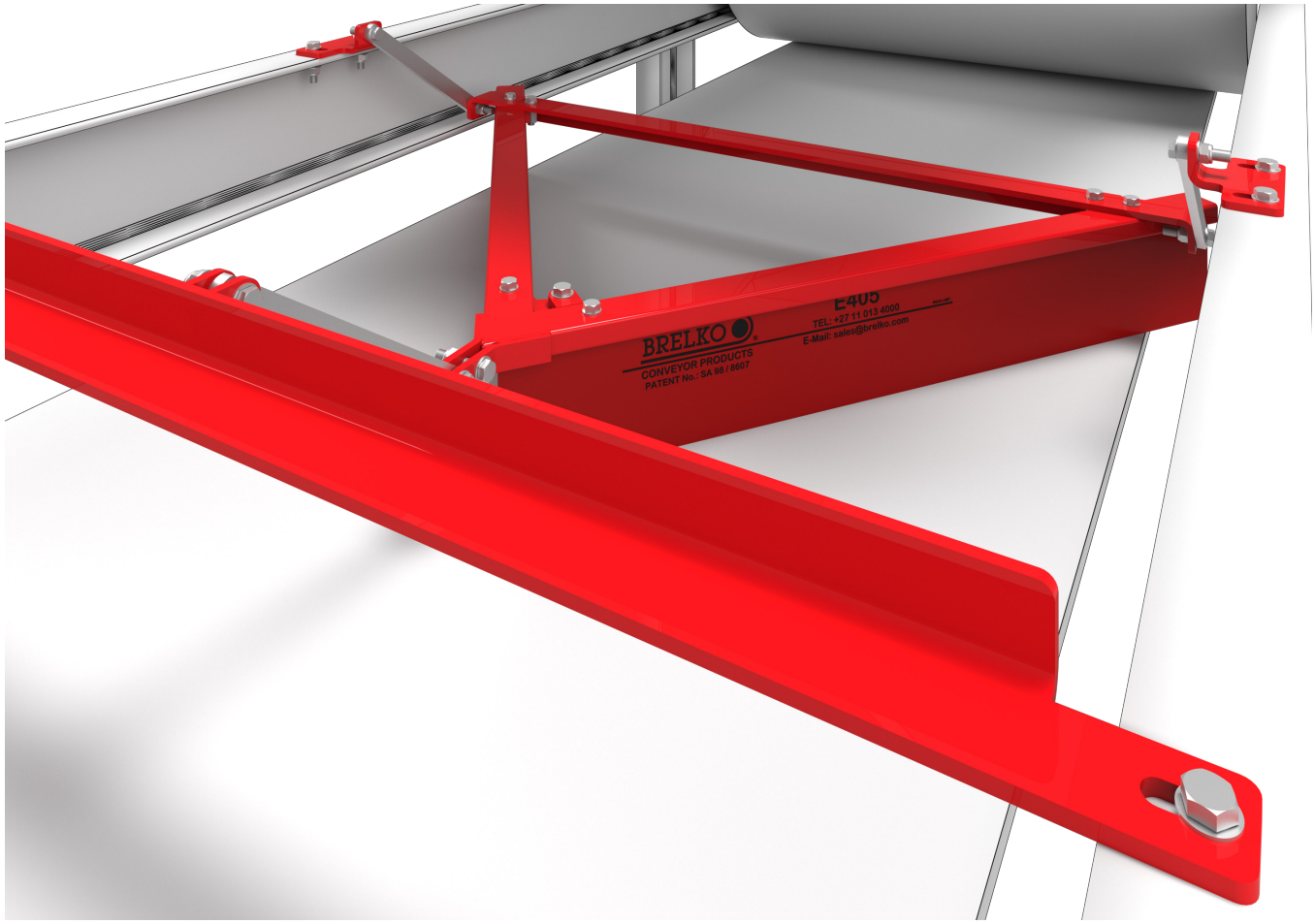
BRELKO®
CONVEYOR PRODUCTS



V-PLOUGH OR ANGLE PLOUGH

Patented

ISO 9001:2015
ISO 14001:2015
ISO 45001:2018

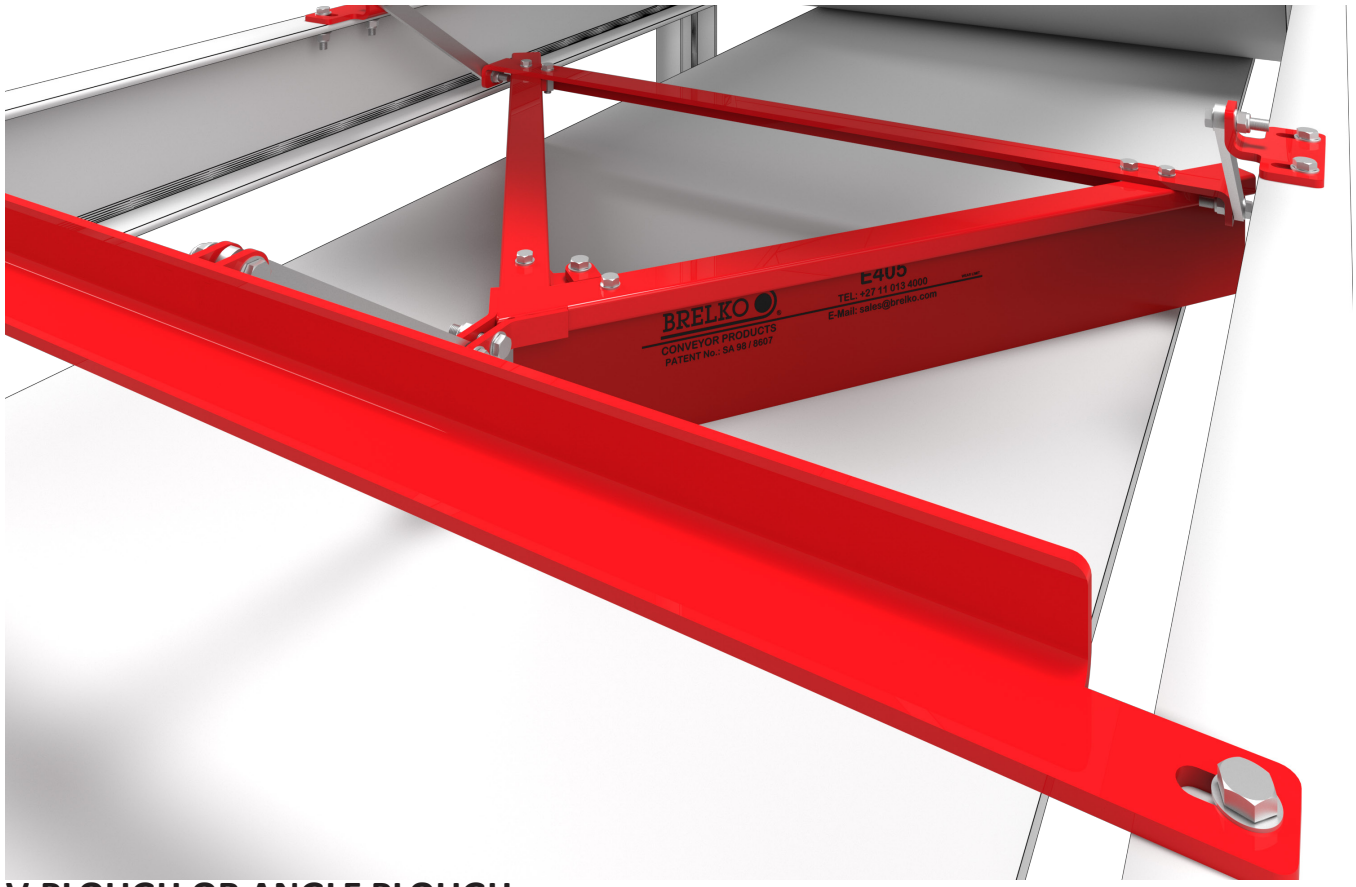
SERVICE EXCELLENCE
OVER 35 YEARS

P.O. Box 62392 Marshalltown 2107 Tel: +27 11 013 4000 E-Mail: sales@brelko.com Web: www.brelko.com

Table of Contents

1. Disclaimer 4
2. Safety Measures and Warnings 4
2.1. The following symbols may be used in this manual: 4
3. General Information 4
3.1. Technical Specifications 5
3.2. Intended Use 6
3.3. Component Overview - E405 V-PLOUGH 7
3.4. Parts List and Hardware - E405 V-PLOUGH 8
3.5. Component Overview - E505 ANGLE PLOUGH 9
3.6. Parts List and Hardware - E505 ANGLE PLOUGH 10
3.7. Component Overview - E505HD ANGLE PLOUGH 11
3.8. Parts List and Hardware - E505HD ANGLE PLOUGH 12
3.9. Dimensions 13
3.10. Order Information 19
4. Before Installing Ploughs 20
4.1. Receiving the Goods 20
4.2. Work Safety 20
4.3. Handling 20
4.4. Storage 20
4.5. Preparation for installing Ploughs 21
4.6. Recommended Tools List 22
5. Installation 23
5.1. E405 23
5.2. E505 STANDARD ASSEMBLY 24
5.3. E505 HEAVY DUTY ASSEMBLY 25
6. After Installing Ploughs 26
7. Maintenance 27
7.1. New Installation 27
7.2. Routine Visual Inspection (every 2 to 4 weeks) 27
7.3. Routine Physical Inspection (every 6 to 8 weeks) 27
8. Troubleshooting Guide 28
9. EU Declaration of Conformity 29

INSTALLATION, OPERATING & MAINTENANCE MANUAL



V-PLOUGH OR ANGLE PLOUGH

PATENTED

Project Name	:	
Project Number	:	
Order Number	:	
	:	
Model Number	:	
Purchase Date	:	
Purchased From	:	
Installation Date	:	

Model number information can be found on the label on the Plough box.
This information will be helpful for any enquires or questions about the Plough replacement parts, specifications, or troubleshooting.

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 Measures and Warnings

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.

2.1. 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.

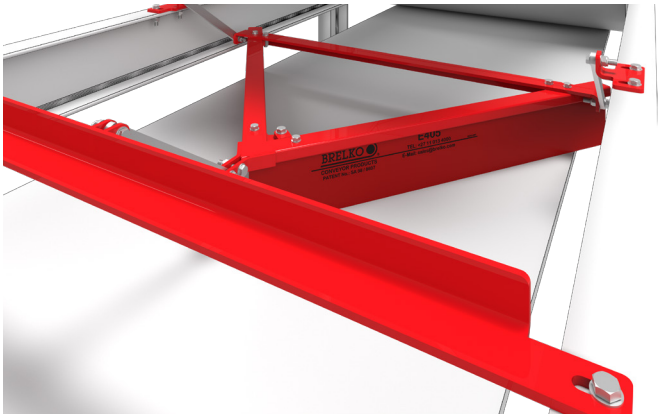
IMPORTANT : instructions that must be followed to ensure proper installation/operation of equipment.

NOTE : general statements to assist the reader.

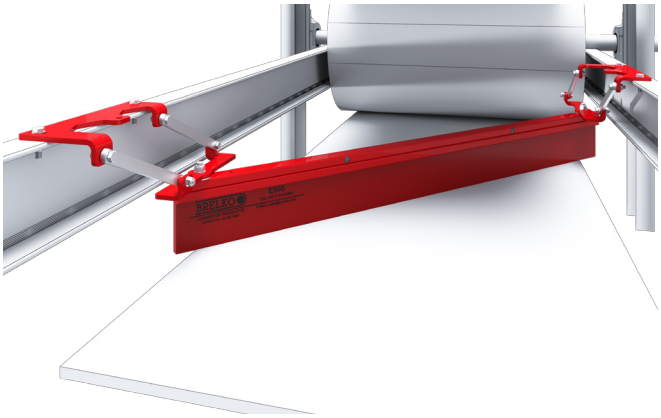
3. General Information

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

3.1. Technical Specifications



V-PLOUGH



ANGLE PLOUGH

APPLICATIONS

- Ploughs are primarily intended for use in conveyor bulk material handling applications to remove material carrying back on the return side of the belt before any nip positions. The E505 Angle Plough is used as an alternative to the E405 V-plough when material can only be discharged to one side of the belt and is suitable for use on reversible belts.

FEATURES

- Specially formulated polymeric blades ensure maximum blade life, and keep the possibility of damage to belt repairs, splices, and metal fasteners to a minimum.
- V-ploughs feature a unique hinged assembly resulting in compact packaging for easy transport and installation. The interlocking blades ensures no blade distortion at the leading edge.
- Track mounted blade mounting makes blade changing quick and simple.
- Units are self-adjusting eliminating the need to readjust to accommodate blade wear thus maintaining constant contact with the belt.
- Ploughs can be mounted on top, bottom or inside of the conveyor stringers.

SPECIFICATIONS

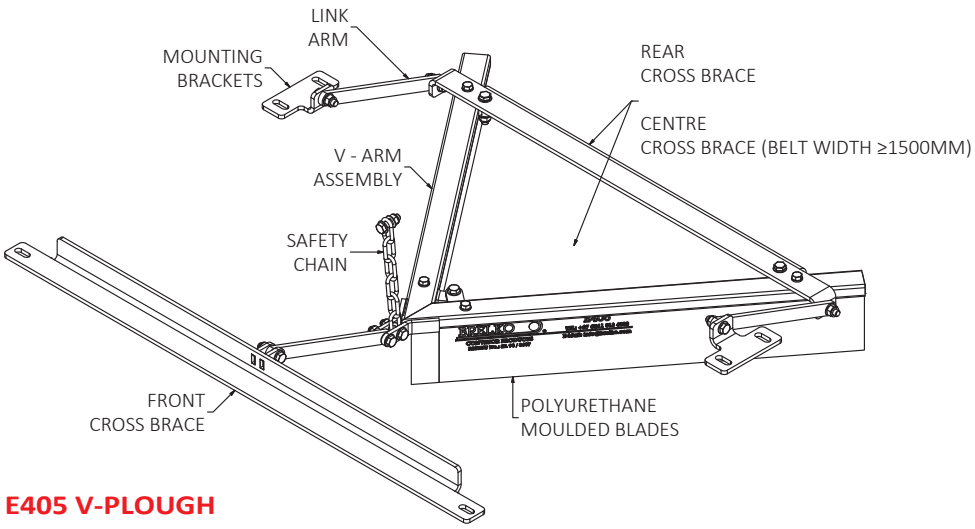
Belt Plough	Recommended Belt Width	Max. Belt Speed (m/sec)	Max. Service Temperature	Handles Reversing Belts & Rollback	Available Blade Material
					Urethane
E405 V - Plough	400 to 2400	6.0	90°C Continuous 120°C Intermittent	--	X
E505 Angle Plough				(X)	
E505HD Angle Plough				X	

HD = Standard Mount
(X) = Handles rollback only

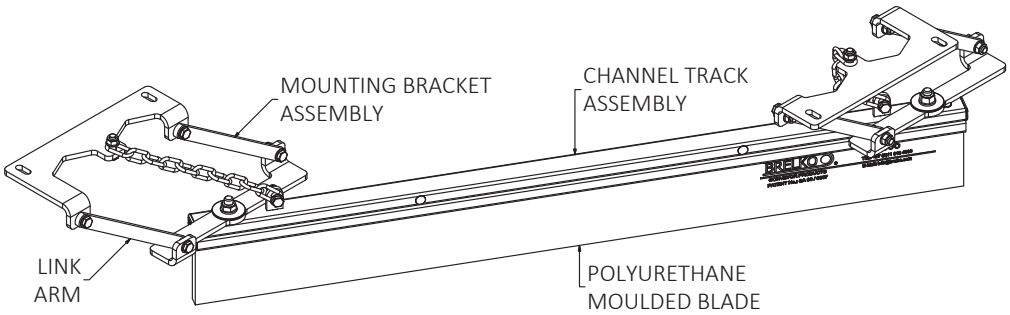
Please note: Stainless steel main frame and mounts are available for corrosive environments.

3.2. Intended Use

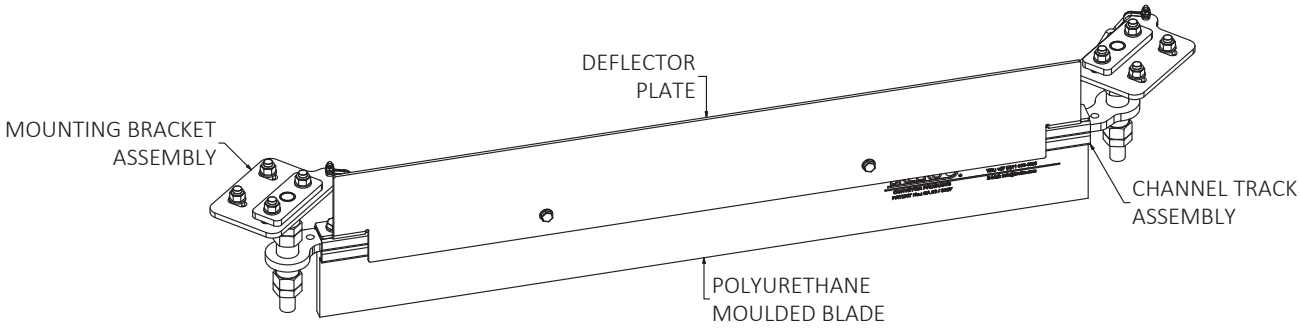
Ploughs are primarily intended for use in conveyor bulk material handling applications to remove material carrying back on the return side of the belt before any nip positions. If material is allowed to travel back on the return side it can result in premature wear of pulley lagging, possible build up on tail pulleys can track belts off and lumps travelling around the pulleys can puncture belts or bruise plies.



E405 V-PLOUGH



E505 ANGLE PLOUGH

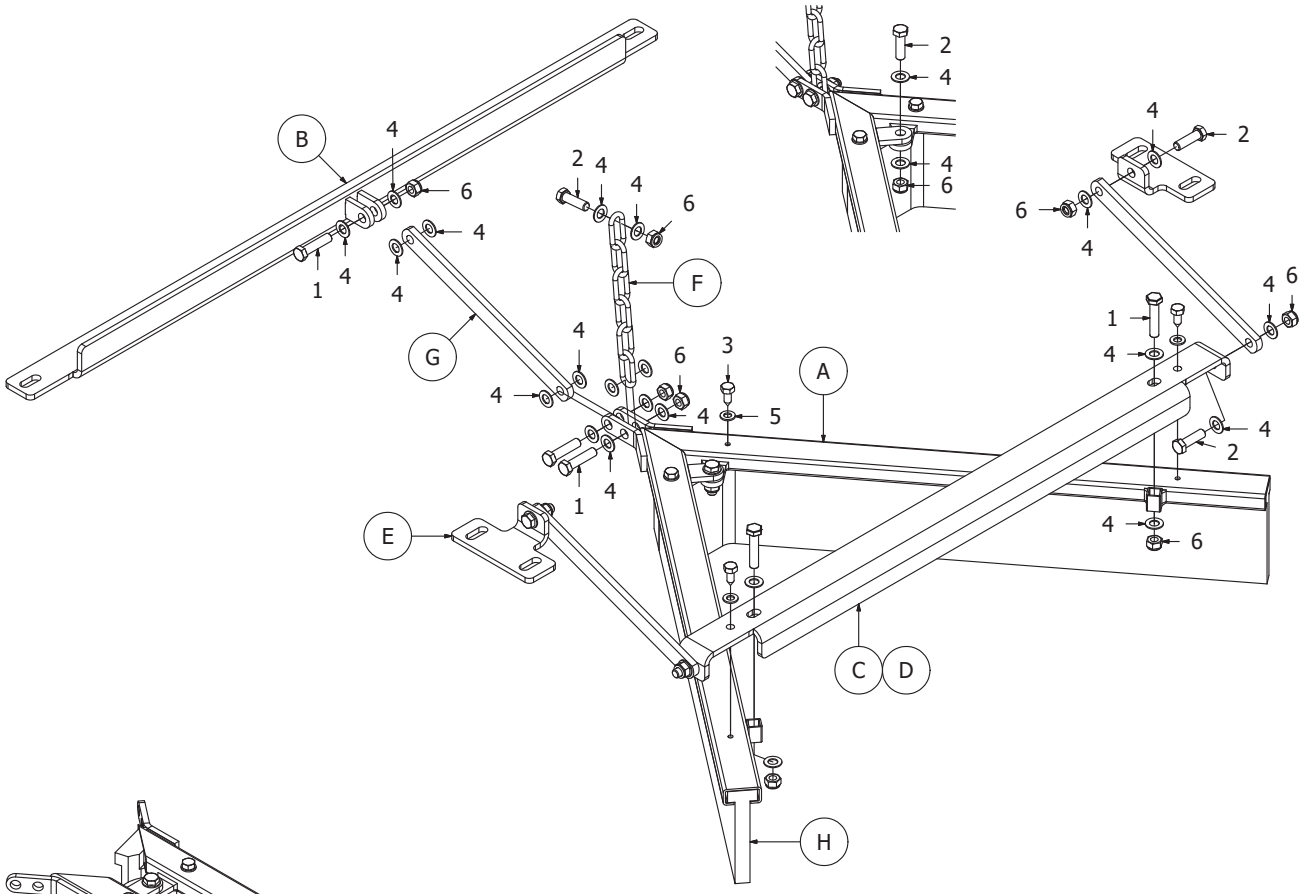


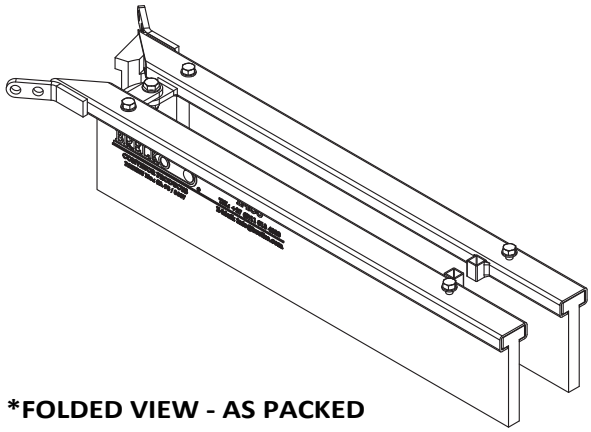
E505HD ANGLE PLOUGH

Ploughs are usually located immediately before the tail or bend pulleys; the plough requires a flat surface of the belt to function correctly and gain optimal results. Ploughs must not be installed directly above the return idlers to prevent uneven blade wear reducing the cleaning efficiency of the plough.

Note: only standard features and options are shown. For additional options or specifying non-standard products, please consult your Brelko representative for assistance.

3.3. Component Overview - E405 V-PLOUGH





***FOLDED VIEW - AS PACKED**

(SHEET 1 OF 2)

3.4. Parts List and Hardware - E405 V-PLOUGH

ITEM No.	DESCRIPTION	SIZE (mm)	BELT WIDTH (mm)	CODE
A	V - ARM ASSEMBLY EXCLUDING POLYURETHANE BLADES	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
B	FRONT CROSS BRACE	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
C	REAR CROSS BRACE	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
D	CENTRE CROSS BRACE	N/A	1500 TO 2400	PLEASE SPECIFY BELT WIDTH
E	STRINGER MOUNTING BRACKET	N/A	400 TO 2400	020-730-0080
F	LINK ARM	N/A	400 TO 2400	2-4.6
G	SAFETY CHAIN ASSEMBLY - 1 MTR	N/A	400 TO 2400	2-4.7.1-2
H	POLYURETHANE BLADE SET (LEFT & RIGHT)	100MM 150MM	400 TO 800 850 TO 2400	PLEASE SPECIFY BELT WIDTH

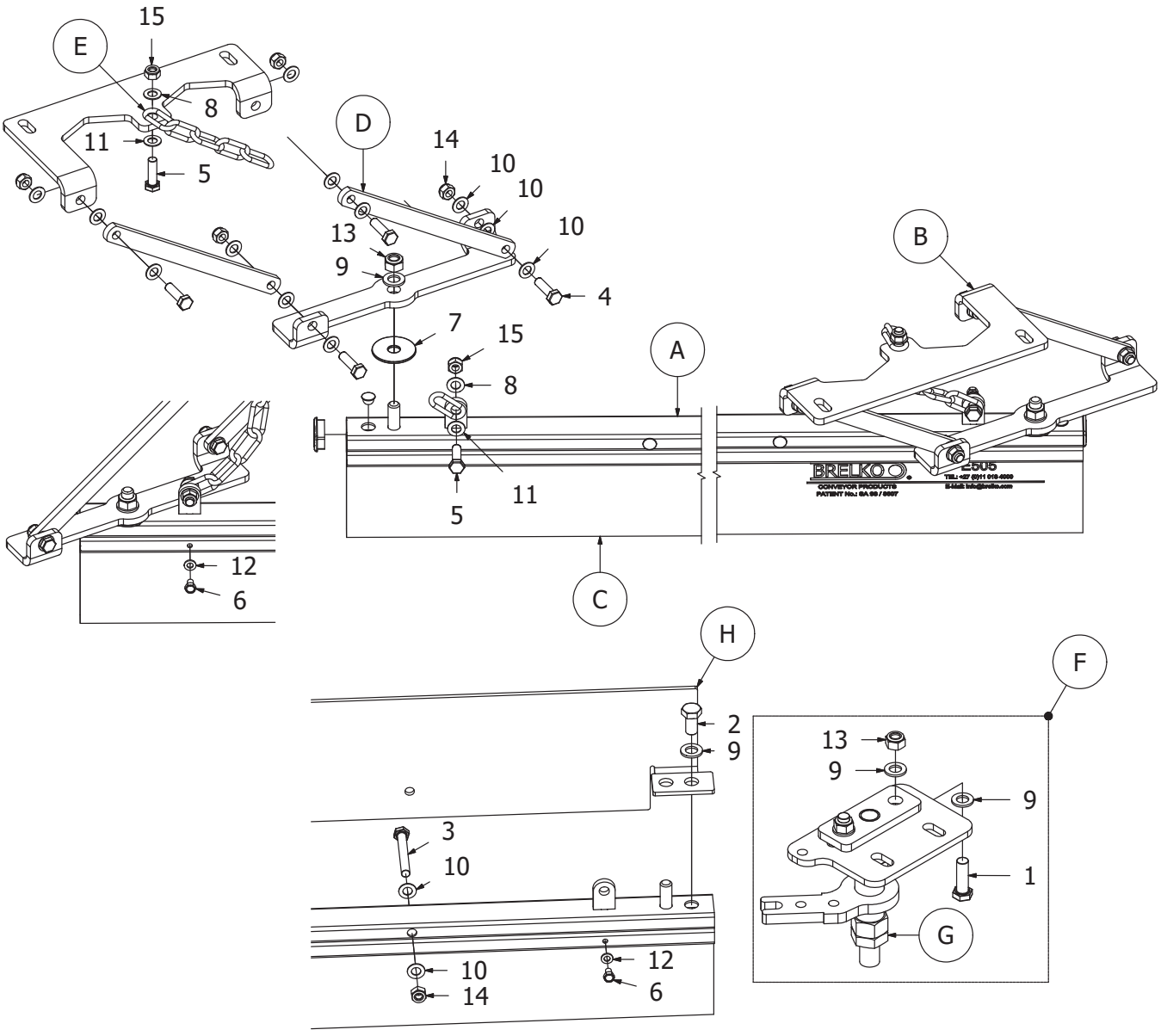
Hardware - All Belt Widths

ITEM No.	DESCRIPTION	QTY.
1	SET SCREW - HEX HD - M12 X 55 -ZP	7
2	SET SCREW - HEX HD - M12 X 40 -ZP*	12
3	SET SCREW - HEX HD - STP - M8 X 25 - ZP	6
4	WASHER - FLAT - M12 - ZP	38
5	WASHER - FLAT - M8 - ZP	6
6	NUT - NYLOC - M12 - ZP	19

* = Denotes mounting bolt size (not shown in view)
ZP = Zinc Plated

(SHEET 2 OF 2)

3.5. Component Overview - E505 ANGLE PLOUGH



(SHEET 1 OF 2)

3.6. Parts List and Hardware - E505 ANGLE PLOUGH

ITEM No.	DESCRIPTION	SIZE (mm)	BELT WIDTH (mm)	CODE
A	CHANNEL TRACK ASSEMBLY EXCLUDING POLYURETHANE BLADES	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
B	STRINGER MOUNTING BRACKET ASSEMBLY INCLUDING SWIVEL BRACKET, SAFETY CHAIN & HARDWARE	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
C	POLYURETHANE BLADE	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
D	LINK ARM	N/A	400 TO 2400	2-4.6
E	SAFETY CHAIN ASSEMBLY - 10 X 16 LINKS - BLACK	N/A	400 TO 2400	2-4.7.1-1

OPTIONAL (FOR E505 TO E505HD UPGRADE)

F	E505 ANGLE PLOUGH TO E505HD PLOUGH CONVERSION KIT INCLUDING SPINDLE ASSEMBLIES, SPINDLE BRACKETS, STRINGER MOUNTING BRACKETS & HARDWARE	SIZE 1 SIZE 2	400 TO 1200 1350 TO 2400	2-5-1 2-5-2
G	SPINDLE ASSEMBLY INCLUDING LOCK NUTS	M30 M42	400 TO 1200 1350 TO 2400	2-1.3 2-1.4
H	DEFLECTOR PLATE	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH

HD = Heavy Duty

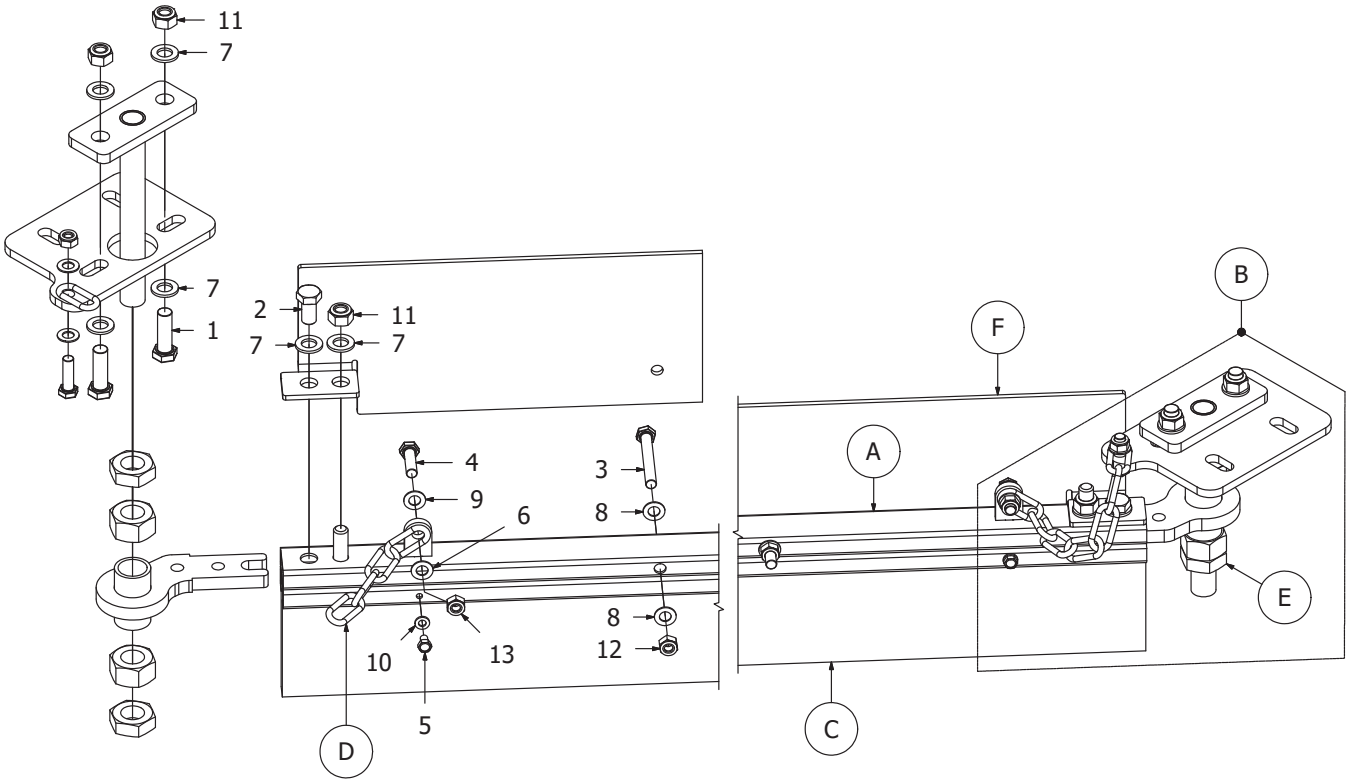
Hardware - All Belt Widths

ITEM No.	DESCRIPTION	QTY.
1	SET SCREW - HEX HD - M16 X 50 -ZP*	(8)
2	SET SCREW - HEX HD - M16 X 30 -ZP	(2)
3	SET SCREW - HEX HD - M12 X 90 -ZP	(3)
4	SET SCREW - HEX HD - M12 X 50 -ZP*	12
5	SET SCREW - HEX HD - M10 X 45 -ZP	4
6	SET SCREW - HEX HD - STP - M8 X 25 - ZP	4
7	WASHER - FENDER - M16 X 55 X 3 - ZP	2
8	WASHER - FENDER - M10 X 30 X 5 - ZP	4
9	WASHER - FLAT - M16 - ZP	2 / (18)
10	WASHER - FLAT - M12 - ZP	32 / (6)
11	WASHER - FLAT - M10 - ZP	4
12	WASHER - FLAT - M8 - ZP	4
13	NUT - NYLOC - M16 - ZP	2 / (8)
14	NUT - NYLOC - M12 - ZP	12 / (3)
15	NUT - NYLOC - M10 - ZP	4

* = Denotes mounting bolt size (not shown in view)
( ) = These parts are specific to the Heavy Duty upgrade kit
ZP = Zinc Plated

(SHEET 2 OF 2)

3.7. Component Overview - E505HD ANGLE PLOUGH



(SHEET 1 OF 2)

3.8. Parts List and Hardware - E505HD ANGLE PLOUGH

ITEM No.	DESCRIPTION	SIZE (mm)	BELT WIDTH (mm)	CODE
A	CHANNEL TRACK ASSEMBLY EXCLUDING POLYURETHANE BLADES	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
B	STRINGER MOUNTING BRACKET ASSEMBLY INCLUDING SPINDLE BRACKETS, STRINGER MOUNTING BRACKETS & HARDWARE	M30 M42	400 TO 1050 1200 TO 2400	020-325-0111 020-325-0112
C	POLYURETHANE BLADE	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH
D	SAFETY CHAIN ASSEMBLY - 10 X 16 LINKS - BLACK	N/A	400 TO 2400	2-4.7.1-1
E	SPINDLE ASSEMBLY INCLUDING LOCK NUTS	M30 M42	400 TO 1200 1350 TO 2400	2-1.3 2-1.4
F	DEFLECTOR PLATE	N/A	400 TO 2400	PLEASE SPECIFY BELT WIDTH

HD = Heavy Duty

Hardware - All Belt Widths

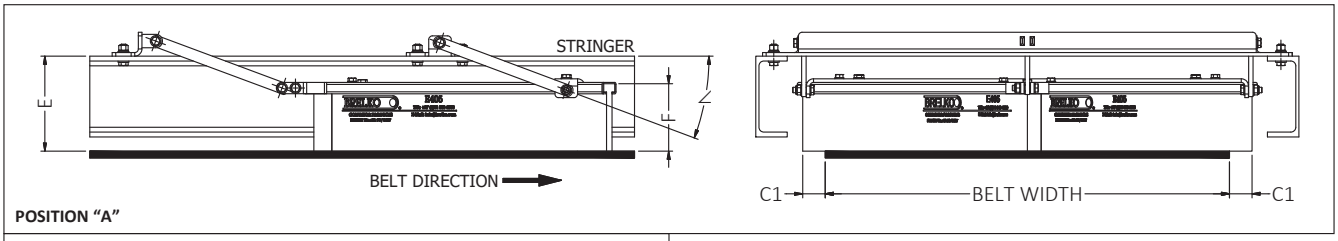
ITEM No.	DESCRIPTION	QTY.
1	SET SCREW - HEX HD - M16 X 50 -ZP*	8
2	SET SCREW - HEX HD - M16 X 30 -ZP	2
3	SET SCREW - HEX HD - M12 X 90 -ZP	3
4	SET SCREW - HEX HD - M10 X 45 -ZP	4
5	SET SCREW - HEX HD - STP - M8 X 25 - ZP	4
6	WASHER - FENDER - M10 X 30 X 5 - ZP	4
7	WASHER - FLAT - M16 - ZP	18
8	WASHER - FLAT - M12 - ZP	6
9	WASHER - FLAT - M10 - ZP	4
10	WASHER - FLAT - M8 - ZP	4
11	NUT - NYLOC - M16 - ZP	10
12	NUT - NYLOC - M12 - ZP	3
13	NUT - NYLOC - M10 - ZP	4

* = Denotes mounting bolt size (not shown in view)
ZP = Zinc Plated

(SHEET 2 OF 2)

3.9. Dimensions

3.9.1. E405 V-Plough



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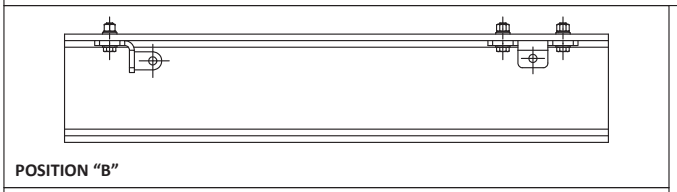
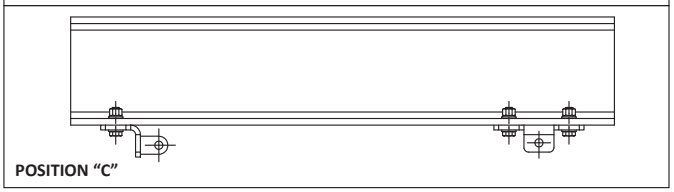
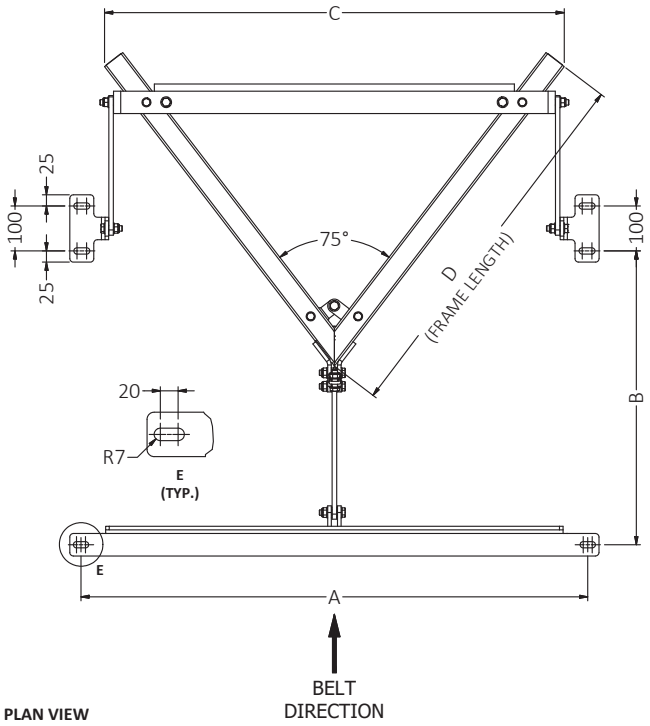


POSITION "B"



POSITION "C"



PLAN VIEW

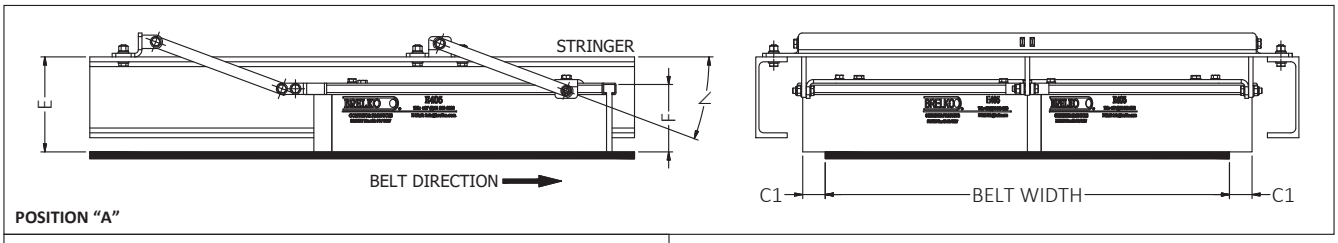
	Belt Width	A SABS/ CEMA
SERIES 30	400	634
	450	686
	500	736
	600	838
	750	990
	900	1144
	1050	1296

Belt Width	A PROK
400	650
450	700
500	750
600	850
650	900
750	1000
800	1050
850	SPECIFY
900	1150
1000	1250
1050	1300

Belt Width		400	450	500	600	650	750	800	850	900	1000	1050
B		331	363.5	396	461	481	555	578	606	652	652	750
C		521	571	621	721	751	871	907	949	1020	1020	1170
C1		61				51	61	54	50	60	10	60
D		428	469	510	592	616.5	715	745	780	838	838	961
E (5°)		85							135			
F		100							150			
ANGLE <	MIN	5°										
	MAX	10°										

Note: only standard features and options are shown. For additional options or specifying non-standard products, please consult your Brelko representative for assistance.

3.9.2. E405 V-Plough



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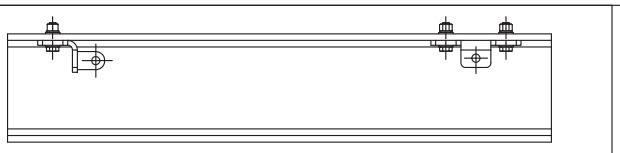

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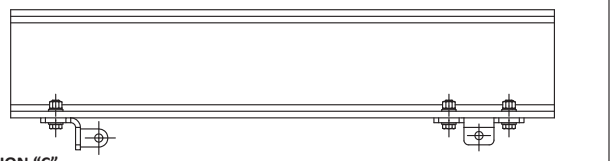

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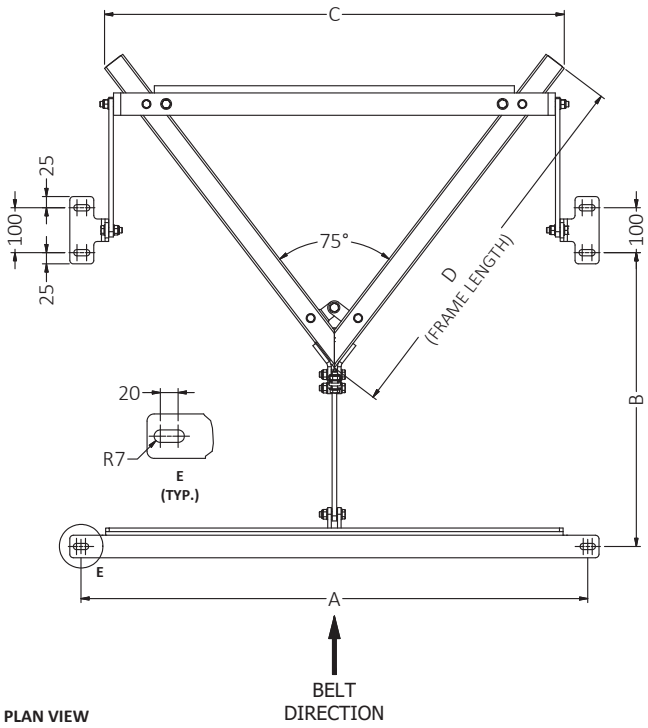


PLAN VIEW

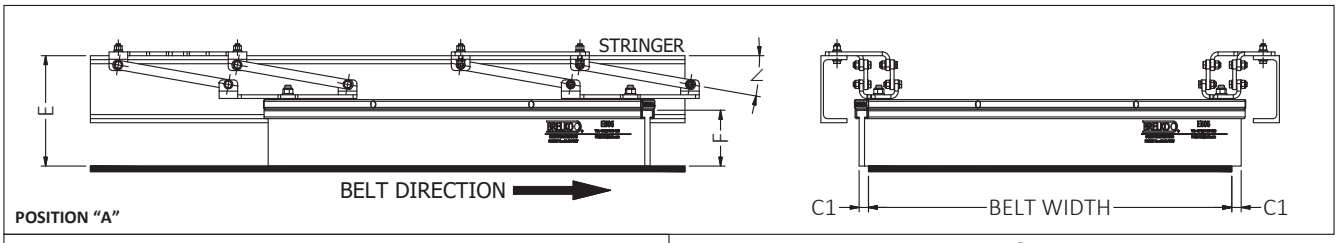
SERIES 30	Belt Width	A SABS/ CEMA
	1200	1448
	1350	1600
	1500	1752
	1650	1904
	1800	2058
	2000	2260
	2100	2362
	2200	2464
	2400	2668

Belt Width	A PROK
1200	1450
1350	1650
1400	1700
1500	1800
1600	2000
1650	2050
1800	2200
2000	2400
2100	2500
2200	2600
2400	2800

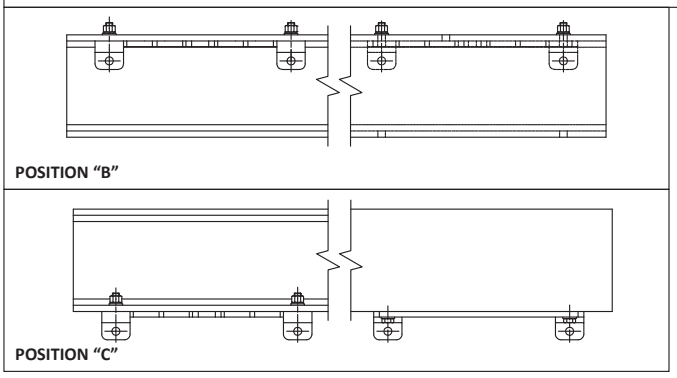
Belt Width		1200	1350	1400	1500	1600	1650	1800	2000	2100	2200	2400
B		848	946	1002	1040	1137	1137	1236	1367	1430	1497	1659
C		1321	1471	1563	1621	1770	1770	1921	2123	2221	2322	2571
C1		61	61	82	61	85	60	61	62	61	61	86
D		1085	1208	1284	1331	1454	1454	1578	1744	1824	1908	2112
E (5°)		135										
F		150										
ANGLE <	MIN	5°										
	MAX	10°										

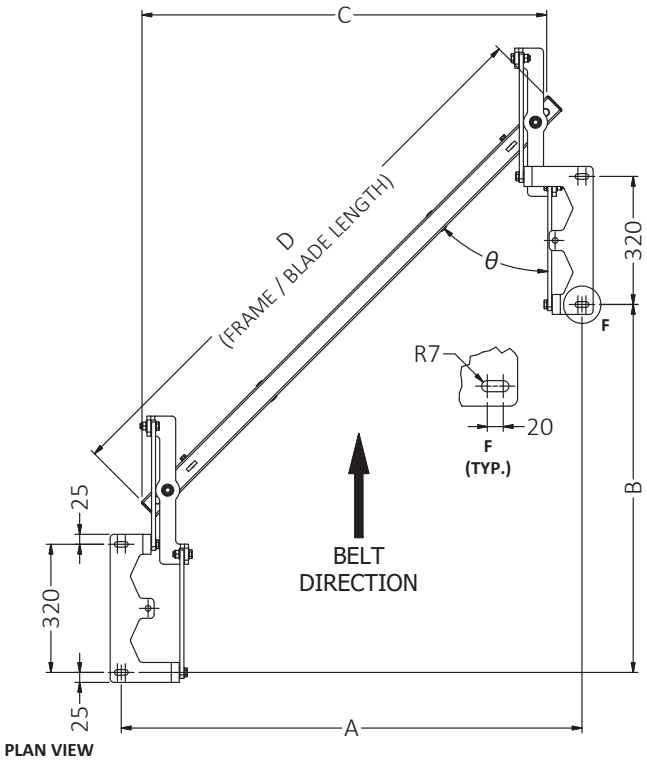
Note: only standard features and options are shown. For additional options or specifying non-standard products, please consult your Brelko representative for assistance.

3.9.3. E505 Angle Plough



POSITION "A"





PLAN VIEW

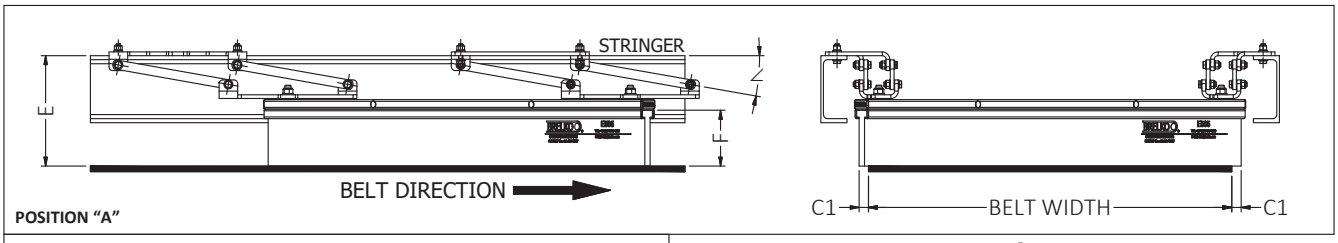
SERIES 30	Belt Width	A SABS/ CEMA
	400	634
	450	686
	500	736
	600	838
	750	990
	900	1144
	1050	1296

Belt Width	A PROK
400	650
450	700
500	750
600	850
650	900
750	1000
800	1050
850	SPECIFY
900	1150
1000	1250
1050	1300

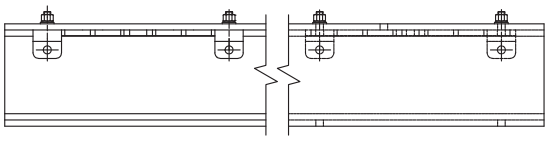
Belt Width		400	450	500	600	650	750	800	850	900	1000	1050
B		410	474	582	615	548	757	690	-	919	1195	1154
C		502	566	589	707	768	849	918	-	1011	1104	1152
C1		51	58	45	54	59	50	25	-	56	52	51
D		710	800	900	1000		1200		1430		1700	
E (5°)		85							135			
F		100							150			
ANGLE θ		45		41	45	50	45	50	-	45	40	43
ANGLE <	MIN	5°										
	MAX	10°										

Note: only standard features and options are shown. For additional options or specifying non-standard products, please consult your Brelko representative for assistance.

3.9.4. E505 Angle Plough



POSITION "A"



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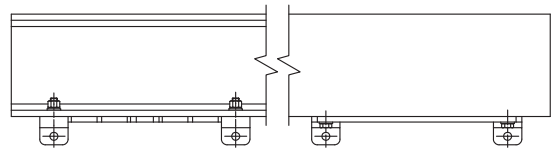
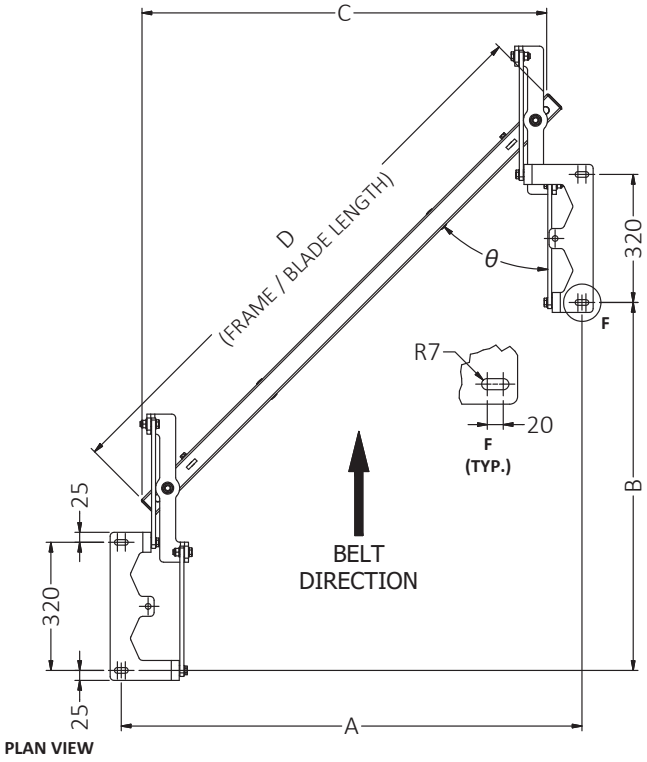


POSITION "C"



PLAN VIEW

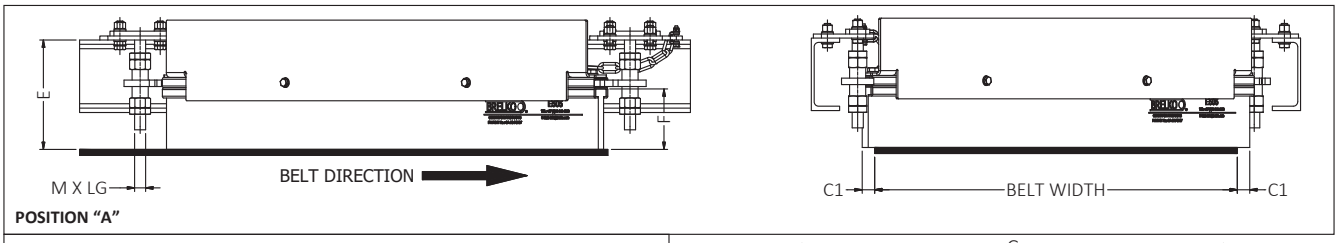
	Belt Width	A SABS/ CEMA
SERIES 30	1200	1448
	1350	1600
	1500	1752
	1650	1904
	1800	2058
	2000	2260
	2100	2362
	2200	2464
	2400	2668

Belt Width	A PROK
1200	1450
1350	1650
1400	1700
1500	1800
1600	2000
1650	2050
1800	2200
2000	2400
2100	2500
2200	2600
2400	2800

Belt Width		1200	1350	1400	1500	1600	1650		1800		2000		2100		2200		2400	
							SABS	PROK	SABS	PROK	SABS	PROK	SABS	PROK	SABS	PROK	SABS	PROK
B		1223	1393	1314	1525	1578	1676	1520	1817	1653	2305	2171	2211	2069	2108	1954	2329	2182
C		1315	1485	1565	1637	1865	1768	1918	1909	2068	2114	2263	2220	2364	2327	2468	2530	2667
C1		58	68	83	69	133	59	134	55	208	57	132	60	132	64	134	65	134
D		1860	2100		2300	2500			2700		3200						3500	
E (5°)		135																
F		150																
ANGLE θ		45		48	45	48	45	50	45	50	41	45	44	48	47	50	46	50
ANGLE <	MIN	5°																
	MAX	10°																

Note: only standard features and options are shown. For additional options or specifying non-standard products, please consult your Brelko representative for assistance.

3.9.5. E505 Angle Plough



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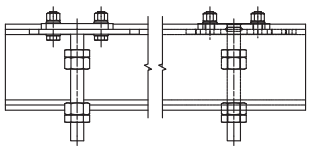

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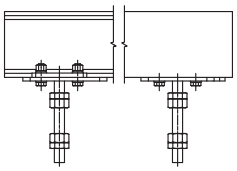
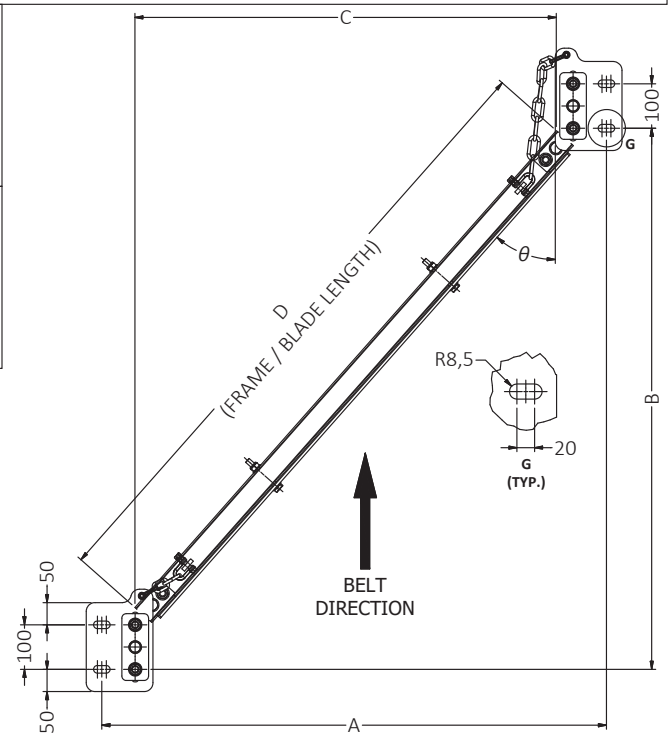


POSITION "C"



PLAN VIEW

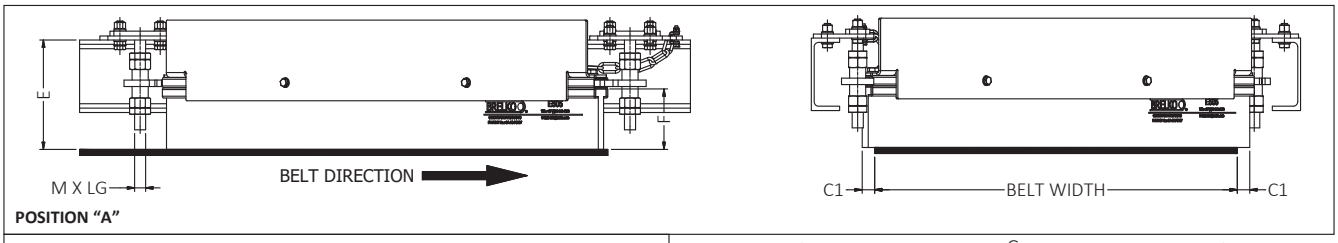
SERIES 30	Belt Width	A SABS/ CEMA
	400	634
	450	686
	500	736
	600	838
	750	990
	900	1144
	1050	1296

Belt Width	A PROK
400	650
450	700
500	750
600	850
650	900
750	1000
800	1050
850	SPECIFY
900	1150
1000	1250
1050	1300

Belt Width		400	450	500	600	650	750	800	850	900	1000	1050
B		693	766	853	902	851	1037	983	-	1037	1467	1432
C		452	505	557	653	705	802	854	-	956	1070	1111
C1		26	28	29	27	28	26	27	-	28	35	31
D		710	800	900	1000		1200		1430		1700	
E	MIN	210							260			
	MAX	215							275			
F		100							150			
ANGLE θ		40	39	38	41	45	42	45	45	42	39	41

Note: only standard features and options are shown. For additional options or specifying non-standard products, please consult your Brelko representative for assistance.

3.9.6. E505 Angle Plough



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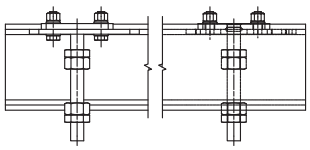

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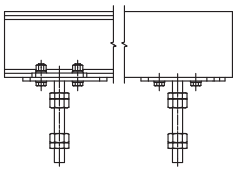

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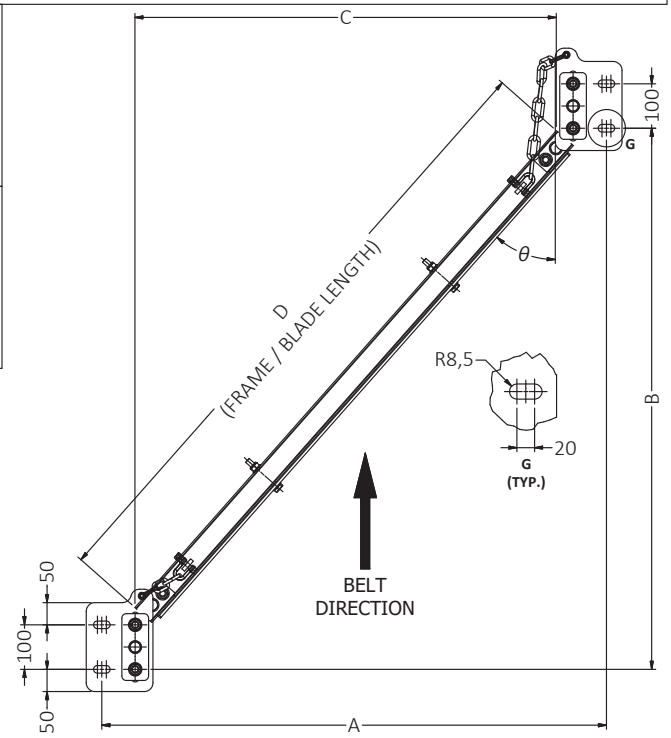


PLAN VIEW

	Belt Width	A SABS/ CEMA
SERIES 30	1200	1448
	1350	1600
	1500	1752
	1650	1904
	1800	2058
	2000	2260
	2100	2362
	2200	2464
	2400	2668

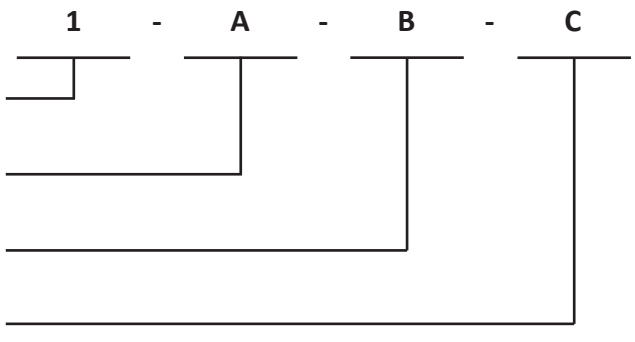
Belt Width	A PROK
1200	1450
1350	1650
1400	1700
1500	1800
1600	2000
1650	2050
1800	2200
2000	2400
2100	2500
2200	2600
2400	2800

Belt Width		1200	1350	1400	1500	1600	1650		1800		2000		2100		2200		2400	
							SABS	PROK	SABS	PROK	SABS	PROK	SABS	PROK	SABS	PROK	SABS	PROK
B		1513	1677	1608	1811	1874	1964	1824	2095	1956	2580	2459	2494	2364	2399	2260	2569	2436
C		1258	1434	1502	1584	1802	1713	1848	1865	1998	2076	2213	2172	2302	2268	2396	2472	2597
C1		29	42	51	42	101	32	99	33	99	38	107	36	101	34	98	36	99
D		1860	2100		2300	2500			2700		3200						3500	
E	MIN	260																
	MAX	275																
F		150																
ANGLE θ		43		46	44	46	43	48	44	48	40	44	43	46	45	48	45	48

Note: only standard features and options are shown. For additional options or specifying non-standard products, please consult your Brelko representative for assistance.

3.10. Order Information

Part Number
1-A-B-C



MODEL NUMBER
Please specify.
Example: : E405
: E505

SERIES
Blank = Standard
HD = Heavy Duty (E505 only!)
Other = Consult your Brelko representative for available options.

MOUNT TYPE
S = Standard Mount
T = Torsion Mount

BELT WIDTH

Please Specify.
Example : 0400 = 400 Belt Width
: 1200 = 1200 Belt Width
Note: All measurements in millimetre (mm).

Consult your Brelko representative for assistance in specifying non-standard products.

4. Before Installing Ploughs

4.1. Receiving the Goods

Check that the shipment contains all the items specified on the delivery note. If this does not match the delivery note or if the items show any transportation damage, **list it on the freight bill**. Describe the damage and the number of incorrect or faulty items and **contact your supplier immediately**.

Defective parts should not be used under any circumstances. Claims must be made within 8 days from the arrival of goods. Brelko do not cover claims or exchange of product if installation was not carried out according to installation instructions.

4.2. 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 a Plough, check that it is securely attached to the lifting equipment. Always follow local safety regulations.

⚠ WARNING

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.

4.3. Handling

Ploughs are supplied semi-assembled in a cardboard box. Care should be taken not to damage the box when unloaded from the transportation vehicle onto customer's platform.

4.4. Storage

Ploughs can be stored unpacked or in transportation package. Ploughs must not be stored unpacked on top of one another, protect the Ploughs by storing them in the transportation package in a cool dry area on a flat surface.

4.5. Preparation for installing Ploughs

1. All ploughs will be boxed and clearly marked with the model number and belt width.

   Note: Ploughs will be supplied with all nuts and bolts to complete the assembly and installation.

2. Referring to the parts list and installation data sheet, check that the correct parts and quantities have been supplied for the model and belt width of plough ordered.
3. Normally ploughs are supplied with the blades assembled in the channel track. If not, assemble as shown using a lithium base grease as a lubricant to ease future removal of blades. If necessary, use a rubber mallet to tap the blades into the channel track. Lock the blades centrally in position by means of the set screws.

   Note: Ploughs for belt widths larger than 750mm; can be supplied with 100mm high blades for confined space installations.

4. Referring to the parts list complete the assembly of the plough.

   Note: Ensure that all bolts and nuts are firmly fastened.

4.6. Recommended Tools List

QTY	DESCRIPTION
2	EXTENSION CORD (20m MINIMUM)
1	PORT-A-PACK (OXY-ACETYLENE)
1	PRICKER
1	COMBINATION GAUGE (WITH SPIRIT LEVEL)
1	STRAIGHT EDGE (1M MINIMUM)
1	90° SET SQUARE
1	5M TAPE MEASURE
1	ADJUSTABLE SPANNERS
1 SET	PIPE WRENCH (3" MINIMUM)
1	SOCKET RATCHET SET (6mm - 30mm)
2	RING SET SPANNERS - M13, 15, 16, 17, 18, 19, 24
2	STANLEY KNIFE
1	M46 SET SPANNERS
1	M65 SET SPANNERS
1	HARD FACE HAMMER - 4lb
1	SOFT FACE HAMMER - 1kg
1	NYLON ROPE
1	"G" CLAMPS - 6" - 8"
1	JIMMY LEVER

5. Installation

Ploughs are intended for removing loose material on the inside of the return side of the conveyor belt ahead of take-ups, drives and tail pulleys

5.1. E405

1. Referring to the assembly instructions and parts list, confirm that all the necessary parts have been supplied and that the plough is correctly assembled.

   Note: The plough mounts can be reversed giving three possible mounting positions on the conveyor stringers, to suit different return belt positions relative to the stringers.

2. If the return belt is not parallel to the stringers the nose or tail of the plough can be lowered by adjusting the front cross brace and stringer mounting brackets (up to 10° from parallel can be accommodated).

   Note: It may be necessary to install flat return idlers.

3. Select the most suitable positions for the plough which should be with the connecting link arms near horizontal. Mark out and make the mounting holes - (to suit M12 bolts).

   Note: If mounting on the inside of the stringer is required, the use of tapered washers may be required.

4. Fix the front cross brace and stringer mounting brackets firmly in position.
5. Ensure that the plough is securely linked to its frame and that it is free to move up and down to follow the belt movement.
6. Make an attachment point on the conveyor frame above and ahead of the plough. Attach the safety chain to the conveyor frame and allow only sufficient slack in the chain to accommodate wear of the plough blades, and to prevent the plough frame from touching the belt.
7. Check that the plough is central on the belt and free to move up and down and that all bolts, nuts, and link arms are securely fastened.
8. Start the conveyor and check for even contact of the blades with the belt and that the plough is moving freely with the belt.
9. The conveyor belt should be flat at the plough position.

   Note: If necessary, install flat return rollers ahead and behind the plough.

5.2. E505 STANDARD ASSEMBLY

1. Referring to the assembly instructions and parts list, confirm that all the necessary parts have been supplied and that the plough is correctly assembled.

   Note: The plough can be positioned to discharge to the left or right hand side of the belt.

2. The return belt at the plough position must be flat and supported ahead and behind the plough.

   Note: It may be necessary to install flat return idlers.

3. Select the most suitable position for the plough. The link arms should be near horizontal.
4. Mark out the mounting holes for the mounting brackets.

   Note: The mounts may be fitted on top, inside or below the conveyor stringers to accommodate the position of the return belt and the conveyor decking, bracing etc.

5. Fix the mounting frame firmly in position.

   Note: If mounting on the inside of the stringer is required, the use of tapered washers may be required.

6. Ensure that the plough is securely linked to its mounting brackets and that the carrier & blade assembly is central.
7. Ensure that a minimum overlap of 15mm on both sides of the belt is maintained and to clear the stringers during vertical movement.

   Note: It may be necessary to trim the ends of the carrier & blade assembly.

8. Locate the swivel mounts to the carrier assembly.
9. Ensure the safety chains are firmly fixed to the mounting brackets and carrier assembly, there should be enough slack to accommodate blade wear and to prevent the carrier from touching the belt.
10. Check that the plough is central on the belt and that all bolts, nuts, and link arms are securely fastened.
11. Ensure all nuts and bolts are firmly tightened.
12. Start the conveyor and check for even contact of the blades with the belt and that the plough is moving freely with the belt.
13. The conveyor belt should be flat at the plough position.

    Note: If necessary, install flat return rollers ahead and behind the plough

5.3. E505 HEAVY DUTY ASSEMBLY

1. Referring to the assembly instructions and parts list, confirm that all the necessary parts have been supplied and that the plough is correctly assembled.

   Note: The plough can be positioned to discharge to the left or right hand side of the belt.

2. The return belt at the plough position must be flat and supported ahead and behind the plough.

   Note: It may be necessary to install flat return idlers.

3. Select the most suitable position for the plough.
4. Mark out the mounting holes for the mounting plates.

   Note: The mounting plates can only be fitted on top of the conveyor stringers.

5. Fix the mounting plates firmly in position.
6. Ensure that the plough is securely fixed to its mounting brackets and that the carrier & blade assembly is central.
7. Ensure that a minimum overlap of 15mm on both sides of the belt is maintained and to clear the stringers during vertical movement.

   Note: It may be necessary to trim the ends of the carrier & blade assembly.

8. Ensure safety chains are firmly fixed to the mounting brackets and carrier assembly, there should be enough slack to accommodate blade wear and to prevent the carrier touching the belt.
9. Ensure all nuts and bolts are firmly tightened.
10. By means of the spindle nuts adjust the plough towards the belt until the blade contacts the belt. Adjust the plough a further two full turns of the spindle nuts towards the belt.

    Note: Ensure the blade remains in contact with the full belt width.

11. Start the conveyor and check the blade/s are in full contact with the belt surface. If further adjustment is required, stop the conveyor, and adjust the plough a further full turn of the spindle nuts towards the belt until all blade/s are cleaning satisfactory.

    Note: Do not over adjust the plough.

12. Check that the spindle lock nuts are firmly tightened.

    Note: To ensure future adjustment of the spindle nuts wrap thread with protective cloth, to protect the thread against corrosion, rust, and ingress of dust.

13. The conveyor belt should be flat at the plough position.

    Note: If necessary, install flat return rollers ahead and behind the plough

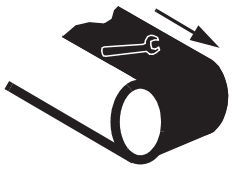
6. After Installing Ploughs

IMPORTANT

Read entire section before starting work.

1. Remove all tools and fire-retardant cover from installation area and conveyor belt. Thoroughly wipe chute or stringers clean above Plough on both sides of belt.

⚠ WARNING



Failure to remove tools from installation area and conveyor belt before turning on energy source can cause serious injury to personnel and damage to belt.

⚠ DANGER

Do not touch or go near conveyor belt or conveyor accessories when conveyor belt is running. Body or clothing can get caught and pull body into conveyor belt, causing severe injury or death.

2. Turn on conveyor and check if all blades are moving freely and cleaning in full contact with the belt surface.
   Note: allow belt to run through at least three to five revolutions.

⚠ WARNING

Before adjusting Plough, turn off and lock out / tag out energy source to conveyor and conveyor accessories.

3. If further adjustment is required lock out / tag out energy source.
4. Adjust the plough until blades are cleaning satisfactory.
   Note: It might be necessary to install flat return idlers ahead and behind the plough to create a flat cleaning surface.

IMPORTANT

5. Make sure all fasteners are tight. Tighten if necessary.

7. Maintenance

Brelko Ploughs are designed to operate with minimum maintenance. However, to maintain superior performance some service is required. When the Plough is installed a regular maintenance program should be set up. This program will ensure that the Plough operates at optimal efficiency and problems can be identified and fixed before the Plough 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 following the correct lockout/tag-out procedures.

7.1. New Installation

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

7.2. Routine Visual Inspection (every 2 to 4 weeks)

A visual inspection of the Plough and belt can determine:

- If the mounts are adjusted at the correct pressure for optimal cleaning
- If the belt looks clean or if there are areas that are dirty
- If the blade is worn out and needs to be replaced
- If there is damage to the blade or other cleaner components
- If fugitive material is built up on the cleaner or in the transfer area
- If there is cover damage to the belt
- If there is vibration or bouncing of the cleaner on the belt
- If a snub pulley is used, a check should be made for material build-up on the pulley
- If any of the above conditions exist, a decision should be made on when the conveyor can be stopped for cleaner maintenance.

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

7.3. Routine Physical Inspection (every 6 to 8 weeks)

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

- Clean material build-up off the plough frame.
- Closely inspect the blade for wear and any damage. Replace if needed.
- Check blade for proper installation and condition. Replace if needed.
- Ensure full blade to belt contact.
- Inspect the plough for damage.
- Inspect all fasteners for tightness and wear. Tighten or replace as needed.
- Replace any worn or damaged components.
- Check the pressure of the plough blade on the belt. Adjust the pressure, if necessary, refer to installation guide.

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

8. Troubleshooting Guide

Problem	Possible Cause	Possible Solution
Poor cleaning performance	Plough link arms not moving freely	Check link arms, remove obstructions
	Plough blade worn or damaged	Replace Plough blade
Rapid Blade Wear	Plough not located correctly	Check Plough location for correct dimensions
	Cupped Conveyor belt	Fit flat return Idlers ahead and behind Plough
	Mechanical splice damaging blade	Repair, skive or replace splice
Centre wear on blade (smile effect)	Belt not flat	Fit flat return Idlers ahead and behind Plough
Unusual wear or damage to blade	Mechanical splice damaging blade	Repair, skive or replace splice
	Belt damaged or ripped	Repair or replace belt
	Plough not correctly located	Verify dimension - refer installation drawing
	Damage to pulley or tail pulley lagging	Repair or replace pulley
Vibration or noise	Plough not located correctly	Fit flat return Idlers ahead and behind Plough
Plough being pushed away from pulley	Sticky material is overburdening Plough	Replace with Brelko heavy duty Plough, contact Brelko for available options
	Plough not set up correctly	Confirm location dimensions are equal on both sides
	Plough link arms not moving freely	Check link arms, remove obstructions

All technical and dimensional information is subject to change. All general Terms and Conditions of sale, including limitations of our liability, apply to all products and services sold.

9. EU Declaration of Conformity

according to 2006/42/EC, appendix IIB for incorporation of partly completed machinery

We, Brelko Conveyor Products (PTY) Ltd

of, 44 Chambers Street, Reuven Extension 1, Booysens, Johannesburg, South Africa

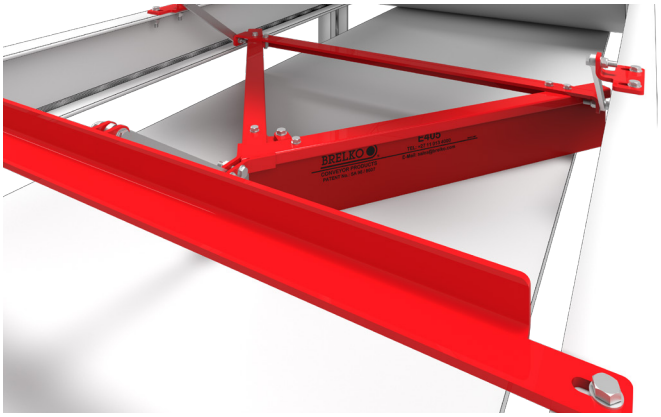
Declare that the declaration of Conformity is issued under our sole responsibility and belongs to the following product rage:

Model Number(s) : 1-A-B-C

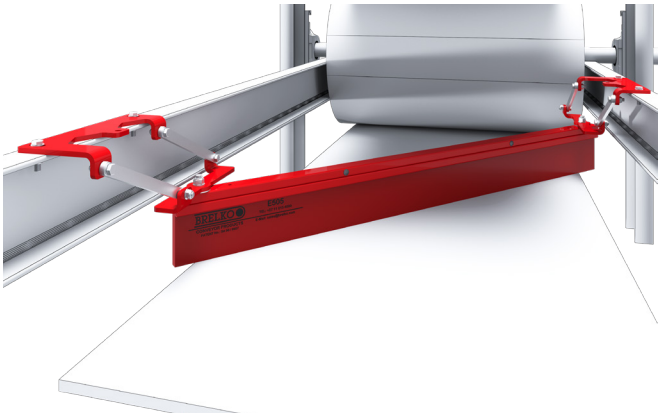
Type : Return Ploughs (Ploughs)

Part Number : See shipping documents (example: 1-E405-0400 / 1-E505-0400-HD)

Machinery of the declaration:



E405 V-PLOUGH



E505 ANGLE PLOUGH

Complies with the applicable Essential Health and Safety Regulations (EHSR) of the:-

2006/42/EC - Machinery and its amending directive; and additional EU regulation,
2014/34/EU - Manufacturer ATEX and its amending directive

Directive 2014/34/EU - Specific marking of explosion protection

CE Ex II 2D c IIIC T135°C Db

The following harmonised standards has been applied:

BS EN IEC 60079-00:2018	Explosive atmospheres	-	Part 01: Machinery General requirements;
BS EN ISO 80079-36:2016	Explosive atmospheres	-	Part 36: Non-electrical Machinery for explosive atmospheres Basic method and requirements
BS EN ISO 80079-37:2016	Explosive atmospheres	-	Part 37: Non-electrical Machinery for explosive atmospheres Non-electrical type of protection constructional safety “c”

The above listed products are also produced under an integrated management system compliant with the international standards:

ISO 9001:2015 - Quality Management System
ISO 14001:2015 - Environmental Management System; and,
ISO 45001:2018 - Occupational Health and Safety Management System.

This partly completed machinery must not be put into operation until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this Directive 2006/42/EG, where appropriate.

This declaration is invalidated by any modification outside the scope of those intended by the manufacturer.

Notes:

Head Office

South Africa

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BRELKO®
CONVEYOR PRODUCTS

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