



FABRIC REINFORCED CONVEYOR BELTING

Technical Guide



ABOUT US

Established in 1974 as a single bearing shop in Durban, South Africa; BMG's aggressive growth strategy has included acquisitions, supplemented by a steady organic growth discipline. BMG attracts best-of-breed talent resulting in technical expertise that differentiates BMG in the industry. Staff are truly part of the BMG family and its success.

BMG boasts an accredited in-house technical and commercial training academy which fosters a culture of staff development and career advancement; it's all about sustainability.

The net result, is a company that reliably supplies and supports 70 000 customers in 15 countries with the widest range of industrial engineered products and expert services in Africa via 105 branches.

BMG is positioned to deliver bespoke 360 degree solutions to its customers, and subsequently return on investment to its investors and shareholders. BMG plays a pivotal role in supporting the productivity and production targets of all Industrial, Manufacturing, Mining and Agricultural sectors of the economies in the countries it serves. With an enviable reputation as Africa's largest distributor, manufacturer and service provider of the highest quality engineering consumables and components; including

- Bearings & Seals
- Power Transmission Components
- Drives, Motors and Controllers
- Hydraulics, Pneumatics and Filtration
- Heavy and Light Duty Materials Handling
- Valves and Lubrication
- Fasteners, Gaskets and Tools

BMG is a level 4 BEE contributor with ISO 9001 Quality Assurance certification. Health and safety of its employees and customers is a paramount focus and the company adheres to ISO 45001. BMG is also committed to environmental care and sustainability and strictly follows the ISO 14001 charter.

As a key contributor to the Invicta Holdings stable, BMG has played a major part in Invicta's unique achievement of being rated in South Africa's Top 100 Companies for 21 consecutive years.



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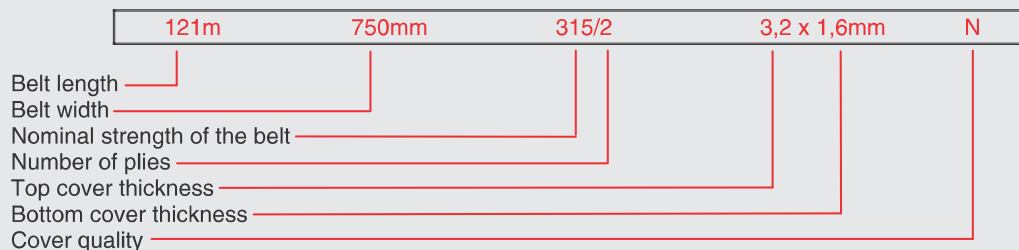
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CONVEYOR BELTING DESIGNATION

Textile conveyor belting is designed (and if desired, also marked) according to the internationally defined standards. In addition, special type and quality definitions by the manufacturers are possible.

Example:



Belt Length

The belt length is usually stated in metres (m), either as an open length or as an endless length. An open belt length means the circumference of an installation plus the extra length for splicing. The endless belt length is the inner circumference of the spliced belt.

- Permitted tolerances on standard belt lengths (according to SABS).

Open Length of Belting	+	2%	or	-	0.5%
Endless Length of Belting		+/-	0.5%		

Belt Width

Belt widths are stated in millimetres (mm) sometimes in metres (m) and preferred widths are specified in international standards.

- Standard Stock widths in mm (Underlined widths indicate standard stock widths)

150, 200, 250, 300, 350, 450, 500, 600, 750, 900, 1050, 1200, 1350, 1500, 1650, 1800, 2100

- Permitted tolerances on standard belt widths (according to SABS).

Belt width of less than	600mm	+/-	7.5mm
Belt width of at least	600mm	+/-	1.5%

Basic Carcass Material

Most belt carcasses are of a mixed construction, made with the synthetic yarns being Polyester and Nylon (EP).

Nominal Belt Strength (Class)

This figure states the minimum breaking strength, or class of the conveyor belt, related to the belt width as a unit of measurement.

200 250 315 400 500 630 800N/mm

Number of Plies

The number of plies completes the figure for the nominal strength.

- Standard values for the nominal strength of the fabric

100 125 160 200 250 315 400
500 630 N/mm

The nominal strength of the belt carcass is indicated by the strength of each ply multiplied by the number of plies and rounded off upwards to the next nominal belt strength.

Covers

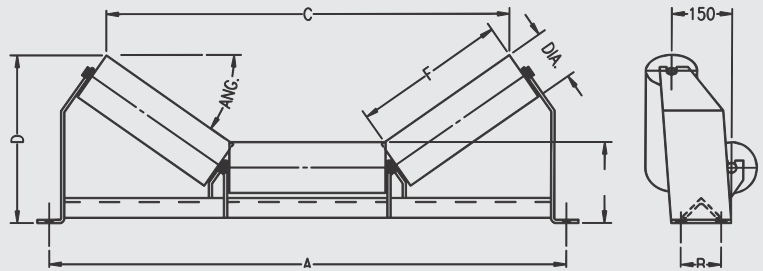
The thickness of both top and bottom cover is stated in millimetres (mm), with the total belt thickness being the sum of the thickness of both covers and that of the carcass.

- Permitted tolerances on cover thickness (according to SABS).

Cover thickness of less than	5mm	-	0.2mm
Cover thickness of at least	5mm	-	5%

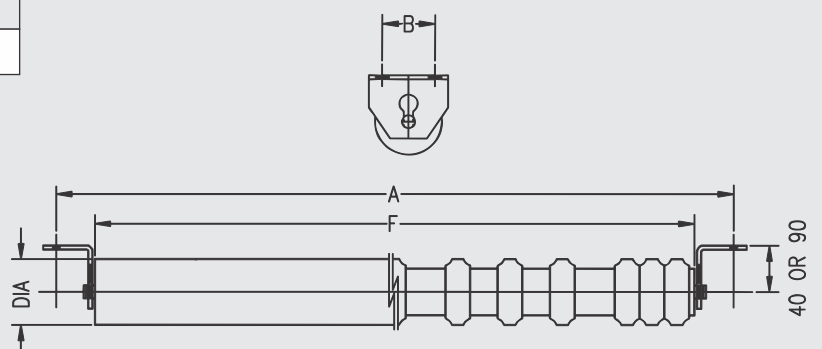
Troughing Idlers (127 DIA Series 25)

BW	F	A	Mounting Slot		20		35		45		Approx. Total Mass
			B	Size	C	D	C	D	C	D	
400	170	634	-	14x25	470	258	429	297	392	318	19
450	190	686	-	14x25	527	265	482	308	440	333	21
500	200	736	-	14x25	556	269	509	314	464	340	22
600	240	838	-	14x25	671	282	614	337	561	368	26
750	290	990	-	14x25	815	299	746	365	682	403	30
900	340	1144	-	14x25	959	317	878	394	802	439	33
1050	390	1296	100	14x25	1103	334	1010	423	923	474	38
1200	450	1448	100	14x25	1276	354	1168	457	1068	511	42
1350	500	1600	240	18x30	1420	371	1300	486	1189	552	55
1500	560	1752	240	18x30	1593	392	1458	520	1333	594	60
1800	660	2058	240	18x30	1877	426	1725	579	1578	667	68



Return Idlers (127 DIA Series 25)

BW	F	A	Mounting Slot		Approx. Total Mass
			B	Size	
400	484	634	100	14x25	10
450	536	686	100	14x25	11
500	586	736	100	14x25	12
600	688	838	100	14x25	13
750	840	990	100	14x25	16
900	994	1144	100	14x25	18
1050	1146	1296	100	14x25	20
1200	1298	1448	100	14x25	23
1350	1450	1600	100	14x25	25
1500	1602	1752	100	14x25	27
1800	1908	2058	100	14x25	33



FABRIC REINFORCED CONVEYOR BELTING

Conveyor Classes

Belt Class	Max. Recomm. Operating Tension (kN/m)	2 Ply	3 Ply	4 Ply	5 Ply
200	20,0	200/2	-	-	-
250	25,0	250/2	-	-	-
315	31,5	315/2	315/3	-	-
400	40,0	400/2	400/3	400/4	-
500	50,0	-	500/3	500/4	500/5
630	63,0	-	630/3	630/4	630/5
800	80,0	-	800/3	800/4	800/5

Approx. Carcass Thickness (mm)

Belt Class	2 Ply	3 Ply	4 Ply	5 Ply
200	2.6	-	-	-
250	2.7	-	-	-
315	2.8	3.5	-	-
400	3.0	3.8	5.0	-
500	-	4.2	5.2	5.9
630	-	5.2	5.8	6.6
800	-	6.0	6.9	7.3

Approx. Carcass Mass (kg/m²)

Belt Class	2 Ply	3 Ply	4 Ply	5 Ply
200	3.0	-	-	-
250	3.1	-	-	-
315	3.4	4.0	-	-
400	3.7	4.4	6.0	-
500	-	4.8	6.4	7.5
630	-	5.2	6.8	8.0
800	-	6.4	7.2	8.5

Cover Thickness (mm)

Cover Thickness
1.5
2.0
2.5
3.0
4.0
5.0
6.0
8.0
10.0
12.0

Cover Grades & Mass per mm of thickness (kg/m²)

Cover Grade	Mass(kg/m ²)
N	1.14
M	1.10
H.R	1.17
O.R	1.41

Figures stated in these tables may vary to those measured in the finished product

FABRIC REINFORCED CONVEYOR BELTING

Recommended Minimum Pulley Diameters

Belt Class	Pulley Type	2 Ply	3 Ply	4 Ply	5 Ply
200	A	315	-	-	-
	B	250	-	-	-
	C	200	-	-	-
250	A	315	-	-	-
	B	250	-	-	-
	C	200	-	-	-
315	A	315	400	-	-
	B	250	315	-	-
	C	200	250	-	-
400	A	400	500	630	-
	B	315	400	500	-
	C	250	315	400	-
500	A	-	500	630	630
	B	-	400	500	500
	C	-	315	400	400
630	A	-	630	630	800
	B	-	500	500	630
	C	-	400	400	500
800	A	-	800	800	800
	B	-	630	630	630
	C	-	500	500	500

Pulley Types: A High tension pulleys wrap exceeding 45° eg. Head, drive, tripper
 B Low tension pulleys wrap exceeding 45° eg. Tail, take-up, take-up bend
 C Low tension pulleys wrap up to 45° eg. Low tension snub or bend

Maximum Number of Plies Recommended for Correct Empty Belt Troughing

Belt Class	Belt Width (mm)								Troughing Angle
	450	600	750	900	1050	1200	1350	1500	
200	2	2	2	2	2	2	2	2	20°
	2	2	2	2	2	2	2	2	35°
250	3	3	3	3	3	3	3	3	20°
	2	3	3	3	3	3	3	3	35°
315	3	3	4	4	4	4	4	4	20°
	3	3	3	4	4	4	4	4	35°
400	4	4	4	4	4	4	4	4	20°
	3	3	4	4	4	4	4	4	35°
500	4	4	4	4	4	4	4	4	20°
	3	3	4	4	4	4	4	4	35°
630	4	4	4	4	4	4	4	4	20°
	2	3	4	4	4	4	4	4	35°
800	3	4	4	4	4	4	4	4	20°
	2	3	4	4	4	4	4	4	35°

Information on SABS

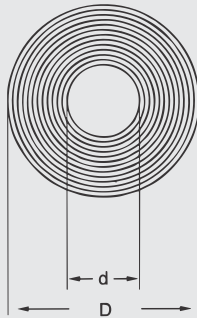
SANS 1173 was first published in August 1977, and was written to give South African manufacturers a guideline to minimum acceptable requirements for "General purpose textile-reinforced conveyor belting"

There have been revisions to the standard. The first revision in 1979, the second in January 2000, and the latest in 2005. These revisions have brought the standards requirements more in line with internationally recognized standards, such as DIN 22 101 and BS490.

Our belting is manufactured and tested in strict accordance to the requirements of SANS 1173.

USEFUL CALCULATIONS

Calculation Method of Finished Belt Length



$$L = \frac{(D + d) \pi}{2} N$$

L : Finished Belt Length
 d : Dia. of Core
 D : Dia. of Rolled Belt.
 N : No. of Times Rolled
 t : Belt Thickness

Method of Calculating the Dia. of Rolled Belt.

$$D = \sqrt{\frac{4}{\pi} t \cdot L + d^2}$$

Belt Thickness	Dia. of Core
6.0 ~ 10.0mm	0.18m
10.5 ~ 20.0mm	0.30m
20.5 ~ 25.0mm	0.40m

Length (m)	Belt Thickness (mm)									
	5	6	7	8	9	10	11	12	13	14
20	0.47	0.49	0.52	0.54	0.56	0.59	0.61	0.63	0.65	0.67
30	0.53	0.56	0.60	0.63	0.66	0.69	0.71	0.74	0.77	0.79
40	0.59	0.63	0.67	0.70	0.74	0.77	0.81	0.84	0.87	0.90
50	0.64	0.69	0.73	0.77	0.81	0.85	0.89	0.92	0.96	0.99
60	0.69	0.74	0.79	0.84	0.88	0.92	0.96	1.00	1.04	1.08
70	0.73	0.79	0.84	0.90	0.94	0.99	1.03	1.08	1.12	1.16
80	0.77	0.84	0.90	0.95	1.00	1.05	1.10	1.14	1.19	1.23
90	0.81	0.88	0.94	1.00	1.06	1.11	1.16	1.21	1.26	1.30
100	0.85	0.92	0.99	1.05	1.11	1.17	1.22	1.27	1.32	1.37
120	0.92	1.00	1.08	1.14	1.21	1.27	1.33	1.39	1.44	1.49
140	0.99	1.08	1.16	1.23	1.30	1.37	1.43	1.49	1.55	1.61
160	1.05	1.14	1.23	1.31	1.39	1.46	1.52	1.59	1.65	1.71
180	1.11	1.21	1.30	1.39	1.47	1.54	1.61	1.68	1.75	1.81
200	1.17	1.27	1.37	1.46	1.54	1.62	1.70	1.77	1.84	1.91
220	1.22	1.33	1.43	1.52	1.61	1.70	1.78	1.86	1.93	2.00
240	1.27	1.39	1.49	1.59	1.68	1.77	1.86	1.94	2.01	2.09
260	1.32	1.44	1.55	1.65	1.75	1.84	1.93	2.01	2.09	2.17
280	1.37	1.49	1.61	1.71	1.81	1.91	2.00	2.09	2.17	2.25
300	1.41	1.54	1.66	1.77	1.88	1.97	2.07	2.16	2.25	2.33

BRINGING THE WORLD'S BEST BRANDS TO YOU

In the bid to procure cutting-edge components at competitive prices, BMG is able to capitalise on long-standing relationships with leading manufacturers dedicated to excellence in design and production.

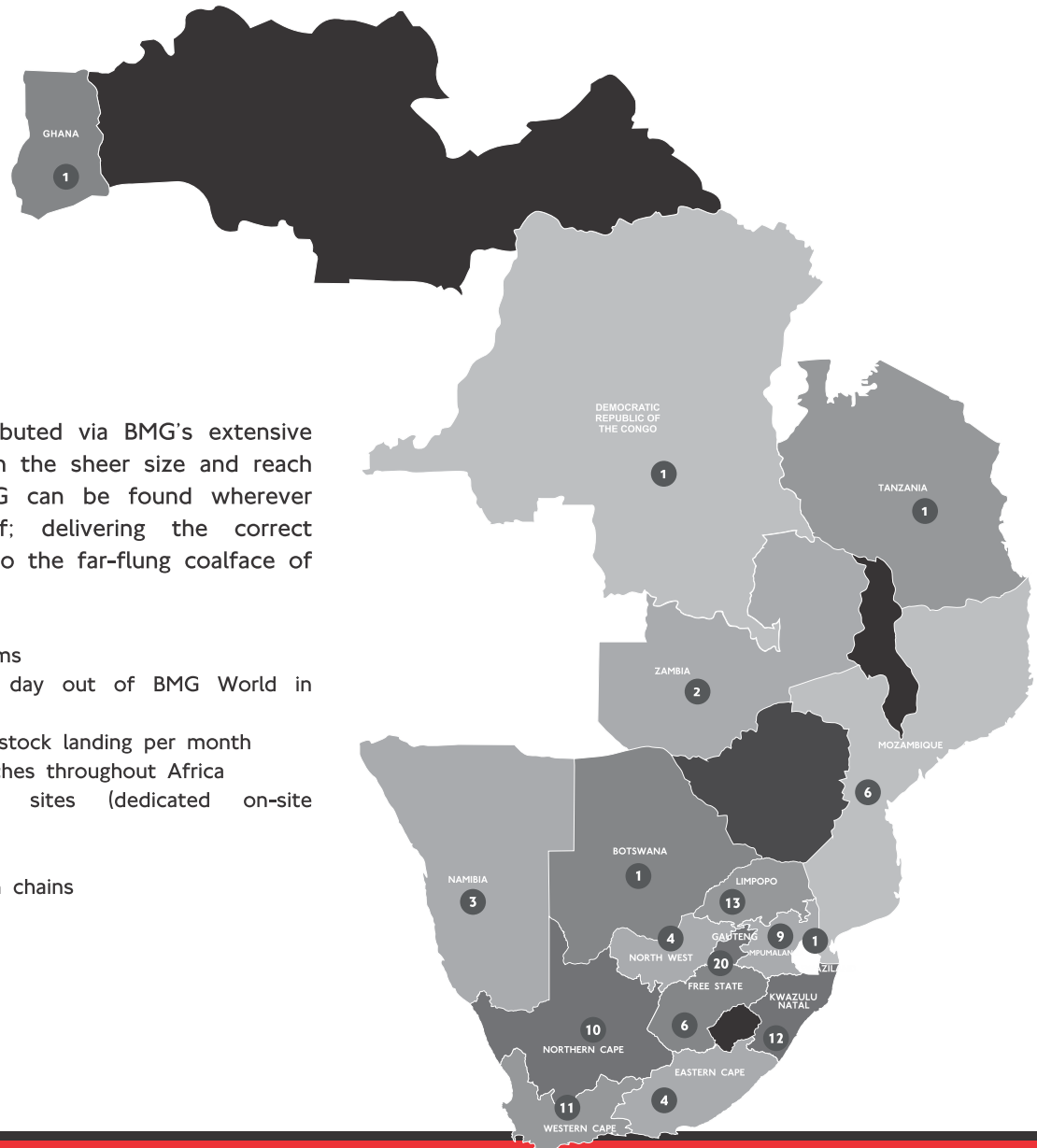
Products are imported from around the globe and brought to BMG's strategically located distribution facilities and regional service centres via the main distribution hub in Johannesburg - BMG World. A world-class facility boasting 308 000m³ of fully stocked warehouse space, an accredited training facility and unlimited engineering capabilities.

Preferred Brands:



Our Extensive Coverage Throughout Africa

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BRANCHES



Products and services are distributed via BMG's extensive distribution network. It's through the sheer size and reach of our infrastructure, that BMG can be found wherever industry has established itself; delivering the correct components at the right time, to the far-flung coalface of our customers' operations.

- Over 300 000 product line items
- Around 4 500 transfers per day out of BMG World in Johannesburg
- Over 1 000 tons of imported stock landing per month
- 105 strategically situated branches throughout Africa
- Vendor Managed Inventory sites (dedicated on-site stockholding)
- International exports
- Locally empowered distribution chains

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