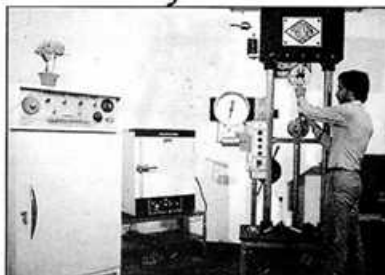


## Looking toward tomorrow with fresh visions

With inventive new approaches and advanced new technologies, we are steadily creating a new generation of "Universal" products. Sincerely with a motto of "High-Quality, high performance "Universal", product development involves the repetition of carefully conducted tests in its most advanced laboratory.

*Anil Gupta*  
Anil Gupta  
Vice President



Conveyor Belts are lucratively employed for carrying and lifting materials by a number of industries such as thermal power, coal, mining, cement, fertilizer, sugar, tea estates etc. and Universal offers ideally designed belts, for optimum resistant to the most common forms of damage from abuse.

## Conveyor Belting Specifications Range

### BELT WIDTHS

From 150 to 1600mm as per IS: 1891 & ISO 4195 in open or endless length as per customer's requirements sub. to length tol. 5%, -1%

### REINFORCEMENT MATERIAL

In various strength ratings of fabrics in cotton/cotton (CC), nylon/nylon (NN) and polyester/nylon (EP). In cotton carcass, fabric types available are 28oz., 32oz., 36oz., for conveyor belt application and 34oz hard duck for elevator belting.

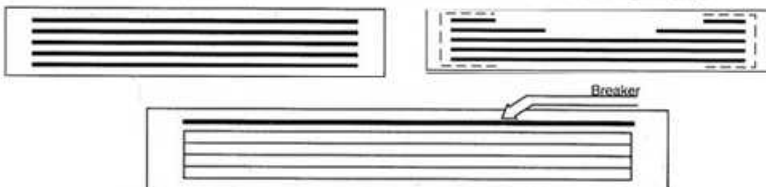
In nylon carcass, belt types available are 250/2, 315/2, 315/3, 400/3, 400/4, 500/3, 500/4, 630/3, 630/4, 800/4, 800/5, 1000/4, 1000/5, 1250/4, 1250/5, 1400/5, 1600/5 & 1800/6 in 3 duty types namely, General Duty, Heavy Duty and Extra Heavy. While, for instance, all nylon 500/3 represents a belt having full thickness tensile strength of 500 KN/m width, incorporating 3 plies of nylon fabric. And the difference in interply thicknesses indicates the Duty types being designed for adequate load support & impact cushioning during material handling.



### PLY CONSTRUCTION

Universal Conveyor Belts are manufactured in monopoly and in multiples ranging upto 12 plies in different constructions, viz, straight ply (widely used & popular), stepped ply construction, and breaker ply construction (for protection against longitudinal impact breaks).

Plies may be skim coated where service conditions are severe.



### EDGE CONSTRUCTION

Universal All cotton conveyor belting is supplied in moulded edges to protect against edge wearing and prevent ingress of moisture, while NN or EP conveyor belting can be supplied both in cut edges as well as in moulded edges. However, Universal recommends a cut-edge construction for NN/EP beltings due to complete rot resistance.

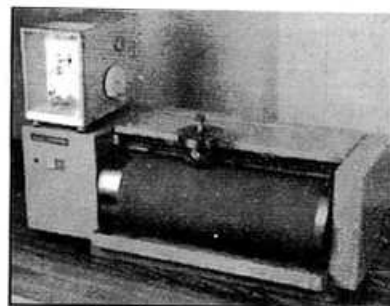
### COVER GRADES

The rubber cover should be selected wisely by taking into account the type of materials to be handled and the operating condition of the belt. The thicknesses manufactured are 1 to 16 mm, and in steps of 0.5 mm available in the following grades:

Grade	Conforming To Standards	Applications			Physical Properties		
		Characteristics	Material Reference	Material Temp. Range	Tensile Strength (Min.) Kg/cm	Elongation (Min.) %	Abrasion (Max.) mm
<b>General Purpose</b>							
M - 24 (M, 'A')	IS. 1891 (Part I) BS. 490 (Part I)	High tensile strength and superior in abrasion, cut and gauge resistance. Recommended for transporting highly abrasive materials.	Metallic ore, Coke Stone, Copper ore, Limestone, Broken glass, etc.	(-) 45° C to +60° C	245	450	150
<b>Heat Resistant</b>							
Universal "BLAZE" (HR)	IS. 1891 (Part I) T <sub>1</sub>	Super in heat and abrasion resistant.	Cement, Chemicals, Soda ash, etc.	+ 65° C to +120° C	130	350	250
Universal "BETAPLUS" (Super HR)	IS. 1891 (Part II) T <sub>2</sub>	Heat and abrasion resistant.	Cement clinker, Foundry sand, Sintered ore, etc.	+ 65° C to +150° C	130	350	250

(Remarks) \* Testing method of abrasion as per DIN 22102.

# sub. to (-20% tol.)



Abrasion Resistance Test

Please consult us for special grades or for your other requirements.

## COVER THICKNESS SELECTION

In addition to selecting a correct rubber cover grade, right thickness of rubber cover must also be considered accordingly, a consideration of "Frequency Factor" is in order. Belt cycle frequency increases with increased belt speed and decreases as the conveyor length increases. The more often a given section of belt carries a load but faster will be a wear rate. For instance, the cover of a 25ft. belt carries twice as much material at 200ft. per minute as it does at 100ft. per minute. Similarly, at the same speed, the 25ft. belt carries a load twice as often as does the 50ft. belt. Hence frequency factor can be calculated as below :

$$\text{Frequency Factor} = \frac{\text{Belt Length}}{\text{Belt Speed in ft./min.}} = \text{Minutes (min.)} \quad (\text{no. of minutes the belt takes to complete one revolution})$$

Once frequency factor is determined as per stated formula, requirement of correct rubber cover thickness can also be calculated by going through the table :

## CONVEYOR BELT RUBBER COVER THICKNESS IN MM (TOP/FACE)

### Recommendation For Bulk Materials (Cold) with Normal Loading Conditions

Frequency Factor (Minutes)	Moderately Abrasive (N-17 Grade)				Very Abrasive (M-24 Grade)				Very Sharp Abrasive (H-TEX Grade)			
	Materials like coal, wood chips, fine-ores, clay unground, charcoal grain etc.				Materials like metallic ore, salt, lime-stone, coke, stone, broken glass, phosphate, rock, slag, sand, sinter, fertilizers, fine-dust, etc.				Materials like foundry refuse, quartz, sand, copper ore, iron borings etc.			
	Lump Size (in inches)				Lump Size (in inches)				Lump Size (in inches)			
	Dust to 1/4	1/2 to 1	2 to 5	6 and above	Dust to 1/4	1/2 to 1	2 to 5	6 and above	Dust to 1/4	1/2 to 1	2 to 5	6 and above
0.2	2.5	4.5	5	10	5.5	10	10	10	9	10	10.5	11
0.4	1.5	4	4.5	7	4	7	9.5	9.5	6	9	10	10
0.6	1.5	3	4	5	3	6	8	9.5	4.5	6	9.5	10
0.8	1.5	2.5	3	4.5	3	5	6	9	4	5	9	9.5
1.0	1.5	2.5	3	4.5	3	4	5	8	3	4.5	8	9.5
1.5	1.5	2.5	3	4.5	3	3	5	7	3	4	7	8
2.0	1.5	2.5	3	4.5	3	3	4.5	6	3	3	5	7
3.0	1.5	2.5	3	4.5	3	3	4	5	3	3	4.5	7
4.0 and above	1.5	2.5	3	4	3	3	3	4.5	3	3	4.5	6.5

## BELT ENDLESSING (SPLICING)



Conveyor Belting can be rendered endless by jointing the two ends of a length of belt either by vulcanised splicing or using mechanical fasteners.

The former is recommended for better results.

**Splicing:** V-shaped (often called diamond) type of joints are strongly recommended.

The extra length required to make the belt endless to requisite size shall be calculated by the following formula :

Splice Length = W + 150 (N-2) + 25mm where, W is width of belt (in mm), N is the number of plies.

The av. approx. weight of rubber cover be taken as 0.034 Kg/25mm width/per mm thick cover per meter length (±8%)

## All Nylon (NN) NOMENCLATURE

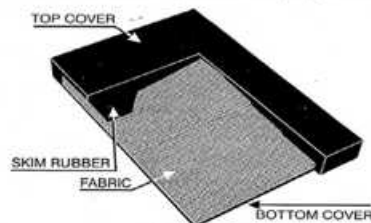
**Universal** All Nylon Conveyor Belts are designed to indicate the minimum full thickness tensile strength and the number of fabric plies in the belt, for eg., All Nylon 500/3 represents a belt having full thickness tensile strength of min. 500KN/m width (= 1275 kg/cm), incorporating 3 plies of nylon fabric.

Belt Designation	Maximum Allowable Working Tension	Nominal Carcass Thickness	Nominal Carcass Weight	Maximum Belt Width (mm) For Adequate Load Support (Material Bulk Density)			Maximum Belt Width (mm) For Adequate Troughing (Angle of picking idlers)			
				Upto 800	Upto 1500	Upto 2500	20'	35'	45'	
GENERAL DUTY (TYPE A)	250/2	25	2.1	0.020	650	600	450	350	400	450
	315/2	31	2.2	0.023	800	700	600	350	400	450
	315/3	31	3.0	0.028	1000	800	650	400	450	500
HEAVY DUTY (TYPE B)	250/2	25	2.6	0.030	900	650	500	450	450	500
	315/3	31	3.7	0.039	1200	1000	800	450	500	500
	400/4	44	4.8	0.048	1300	1100	850	500	500	600
	500/4	50	5.0	0.046	1400	1200	900	500	500	650
	630/3	63	4.2	0.047	1400	1200	1000	500	500	650
	630/4	70	5.4	0.052	1800	1400	1200	500	650	800
	800/4	90	5.6	0.054	1800	1600	1400	650	800	900
	1000/5	120	7.0	0.070	1800	1600	1400	700	850	1000
1250/5	140	7.5	0.076	1800	1600	1400	800	1000	1000	
EXTRA HEAVY DUTY (TYPE C)	500/4	55	5.5	0.061	1400	1200	800	500	500	650
	630/4	70	5.9	0.067	1400	1200	850	500	500	650
	800/4	90	6.2	0.070	1600	1400	1000	500	500	650
	1000/5	120	7.7	0.085	1800	1500	1300	500	650	800
	1250/5	140	8.3	0.092	1800	1800	1600	650	800	900
	1600/5	180	9.4	0.097	2000	2000	1800	800	900	1000
	1800/6	190	10.6	0.120	2000	2000	2000	800	900	1000

## All Cotton (CC) NOMENCLATURE

Fabric Type	Approx. thickness ply (mm)	Approx. weight kg/cm width/mtr.	Av. Breaking Strength of individual fabric N/cm width		Maximum allowable working tension N/cm/ply			
			Warp	Weft	Mechanical Fasteners			
					Screw Take-up		Gravity Take-up	
28oz	1.20	0.012	625	335	44.1	47.1	47.1	52.9
32oz	1.25	0.014	690	370	52.9	55.9	55.9	60.8
34oz	1.30	0.017	670	480	52.9	55.9	55.9	60.8

# 4 Ply 28oz, 5 Ply 32oz, are std. popular belt strengths used in major applications.



Other constructions can be exclusively designed and manufactured against specific requirements. In the light of technological development, "Universal" reserves the right to alter the specification parameters without notice.

