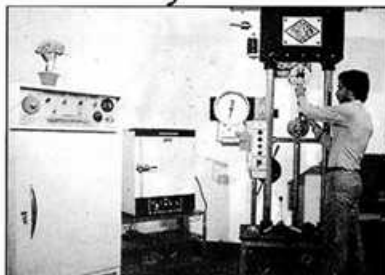


## Looking toward tomorrow with fresh visions

With inventive new approaches and advanced new technologies, we are steadily creating a new generation of "Universal" products. Sheerly 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.



"Universal" Hygienic Conveyor Belt conveying Tea leaves on CTC machine.

### 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<sup>2</sup>), incorporating 3 plies of nylon fabric.

Belt Designation		Maximum Allowable Working Tension KN/m	Nominal Carcass Thickness (mm)	Nominal Carcass Weight Kg./cm. Width/mtr.	Maximum Belt Width (mm) For Adequate Load Support (Material Bulk Density) (Kg./m <sup>3</sup> )			Maximum Belt Width (mm) For Adequate Troughing (Angle of picking idlers)		
Type	Rating				Upto 800	Upto 1500	Upto 2500	20'	35'	45'
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

### 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		Vulcanised Splices	
					Screw Take-up	Gravity Take-up	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.

### 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>Hygienic</b>							
HYGIENIC	IS : 1891 (Part IV)	Non-toxic, tasteless and odourless. Recommended for handling foodstuffs.	Tea, Coffee, Pharmaceuticals, etc.	(-) 20° C to +60° C	100	350	350
<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
N - 17 (N or S)	IS. 1891 (Part I) BS. 490 (Part I)	Recommended for transporting moderately abrasive and non-abrasive materials.	Coal, Wood chips Fine ores, Clay Unground, Cement, etc.	(-) 35° C to +60° C	175	400	200
<b>Heat Resistant</b>							
Universal "BLAZE" (HR)	IS. 1891 (Part I) T.	Super in heat and abrasion resistant.	Cement, Chemicals, Soda ash, etc.	+ 65° C to +120° C	130	350	250

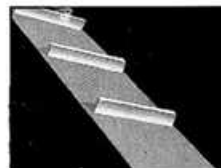
### CLEATS TYPE CONVEYOR BELTS



Chevron Cleats



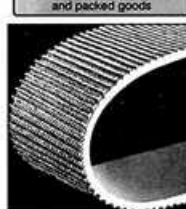
Side Wall Cleats



Full Width Cleats

### ROUGH TOP CONVEYOR BELT

for transporting fragile and packed goods



Manufactured upto 1000mm width in different strength ratings and cover thicknesses in Grade M24-'A' in two popular designs - Fluted (rough top) and Fishbone (rough top)

- Inclined Conveyor
- Loading Conveyor
- Intermediate Conveyor
- Discharge Belt
- Bottom Conveyor
- Top Conveyor
- Telescopic Conveyor
- Bag Diverter
- ... and many more

## Belt Endlessing

Conveyor Belting can be rendered endless by jointing the two ends of a length of belt either by vulcanised splicing or by using mechanical fasteners. We recommend use of the former for better results.

### Tools Requirments

- 1. Vulcanising Machine :** An electric portable vulcanising machine is required for curing different sizes of conveyor belting. HIC International Co, India offers such machines in different sizes to suit individual requirement of vulcanising the maximum width of belt.
- 2. Tools & Instruments :** Tools required for splicing of conveyor belt are : a) Sharp Knife b) Ply Lifter; c) Ply-Cutting Knife; d) Pincers e) Steel Measurement Tape; f) Wire Brush; g) Solution Brushes; h) Rubber Cutting Scissors; i) Screw Driver j) Rubber Pricker; k) Hand Roller; l) Triangular File; m) White Crayon; n) Wooden Platform; o) Angle Iron Clamps.

### 3. Splicing and Repair Materials :

- 3.1. Solution (HSO1)** The solution is available in 5 ltrs. containers sold per container. It has a shelf life of approx. 5 months.
- 3.2. Insulation Compound (HGO4)** The Insulation compound is made in rolls of 200mm wide and sold by weight. It has a shelf life of approx. 5 months.
- 3.3. Cover Compound (HCO6)** The cover compound is available in three grades :  
a) For Grade M-24 belts; b) For Heat Resistant Belts; c) For Hygienic belts.  
This compound is made and supplied in 300mm wide rolls of 1mm thickness approx. with polythene packing and sold by weight. It has a shelf life of approx. 3 months.

### Splicing Procedure

The industry already have sufficient knowledge and experience of splicing conveyor belts. We shall only take up the salient parts and give the details of our recommended V-Shape type of joint only.

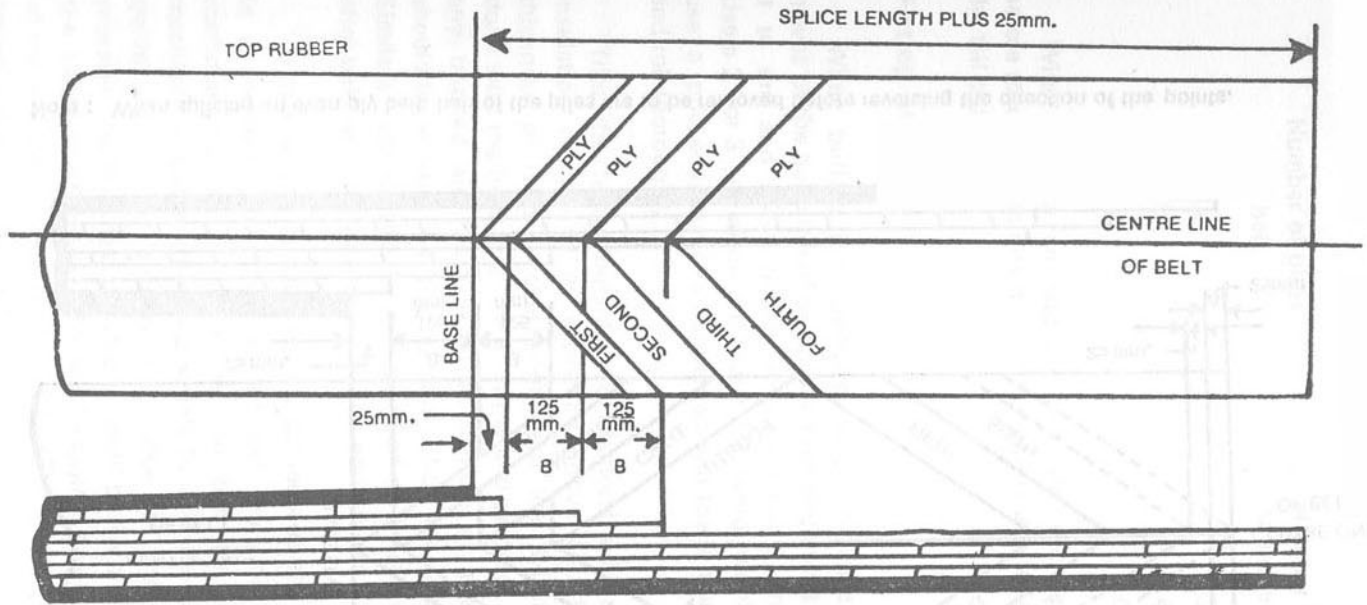
The extra length required to make the belt endless to requisite size shall be calculated by the following formula :

$$\text{Splice Length} = W + 150 (N - 2) + 25\text{mm}$$

where, W = Width of belt (in mm)

N = Number of plies

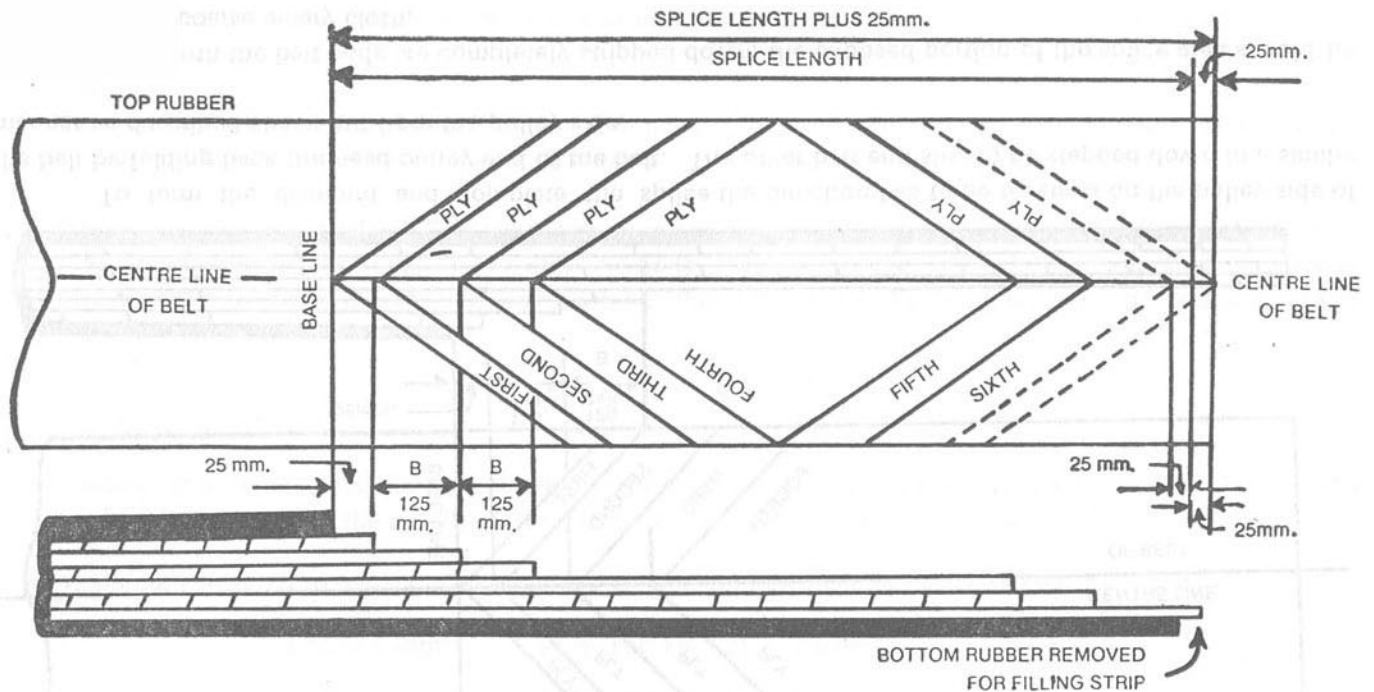
The Diagramme given overleaf depicts the splicing procedure to be adopted in the case of say a 6 ply belt.



To form the diamond and complete the splice the direction has to be reversed on the pulley side of the belt by folding back the head pulley end of the belt. The other belt end should be stepped down in a similar manner as described above but from the pulley side.

After both the belt ends are completely stripped down, the exposed portion of the splice area should be cleaned with a coarse emery cloth.

The Diagramme below depicts the stripping procedute of a 6 ply belt.



Note : When splicing an even ply belt, half of the plies are to be removed before reversing the direction of the points.



To determine the number of plies to be removed from a belt with an odd number of plies, use the following table before reversing the direction of the points :

Number of plies in belt	Number of plies to be removed
5	3
7	4
9	5

When splicing an odd ply belt, the number of plies removed before reversing the direction of the points is one less than it was on the tail pulley end.

### Fitting of Splice

When buffing and cleaning job with solvent is over, the two halves of the belt should be checked for alignment and fitting. Allow it to dry and apply rubber insulation compound and the solution. Use a 2" or 3" roller on the fabric to avoid wrinkles if any. Then use a pricker to remove trapped air and lower the top half into place and roll thoroughly.

Trim the fabric outside the diamond with a V-Knife and apply insulation compound as explained above and fill in with correct thickness of rubber cover compound and width. Stitching is then done with the help of 2" or 3" roller and pricked with a pricker for any trapped air. Just like this, bottom or back side of the splice should be worked by raising the splice arc with wooden planks. Similarly, edges should also be filled up by rubber cover compound after buffing and applying insulation compound.

If the above is satisfactorily carried out, the splice can be cured in a portable electrically heated belt vulcanising machine (also manufactured by HIC). Place the belt centrally in vulcanising machine and tighten the belts evenly for uniform pressure. Use side guides against the side of the splice for applying necessary edge pressure, the thickness of which should be 1mm to 1.5mm less than the total belt thickness. To avoid sagging, put a support at each end of the vulcanizer. An overlap of 1" (25mm) must please be allowed between each curing edge.

The splice curing time per charge may please be followed as per table given below :-

Total Belt Thickness (mm)	Curing Time (Minutes) with temperature at 150°C+2° tolerance
a) upto 7	25
b) above 7 and upto 10	28
c) above 10 and upto 15	35
d) above 15 and upto 20	40
e) above 20 and upto 25	50