SANDHYA ENTERPRISES

Plot No 5-24-1223/5/1, Ambedkar Nagar,
Gajuramaram,
R.R. Dist.500055, Hyderabad,Telangana State. India

Profile

We are pleased to introduce ourselves as **Rubber Sheet**, **Textile Braided hose**, Rubber Suction Hose, **Elastomeric Bridge Bearing**, Rubber Moulded products, Extruded Products and PVC Water Stop, Bridge Expansion Joint. We have leading and reputed consumer as our valued customers. It will be our pleasure If we can be of any service to your good selves and welcome your inquiries for your requirements.

Our service is well established with the, Cement industries, Granites industries, Electric Power Industries, Ready Mix Industries, Construction Company and Civil Construction Works. We go through the test certificate, Physical Properties, Processing condition of the finished goods, grades etc and after looking at the final product we confidently recommended our valued customer to buy the product.

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Contact No:+91-9652998932 ,9550921831

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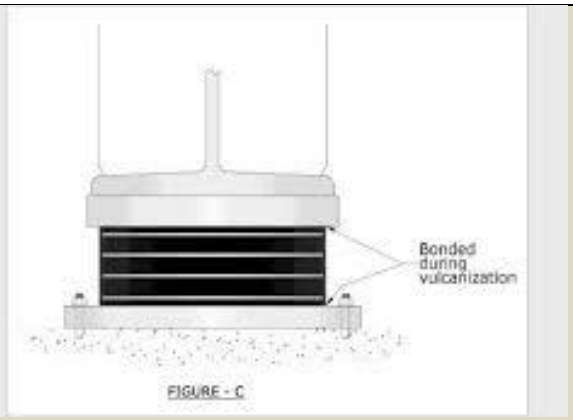
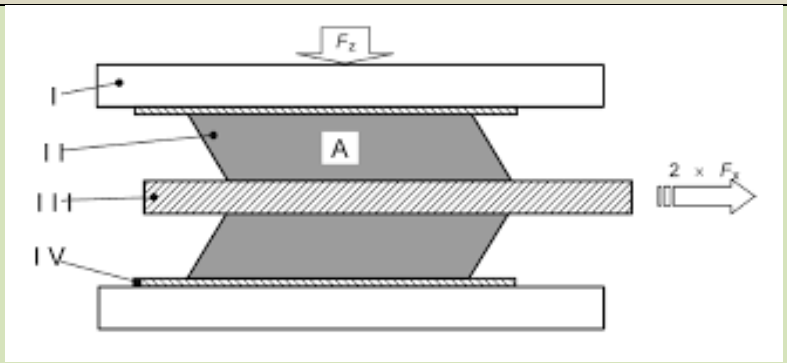
ELASTIC MODULUSE TEST 10MPa to 20MPa



Ultimate Compression Strength 60MPa

Adhesion Strength (Stripping Test) at 4MPa VL and 3MPa HL



Shear Modulus Test 5MPa VL and HL load 2H

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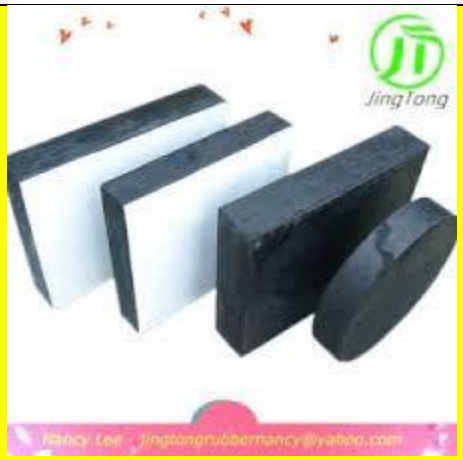
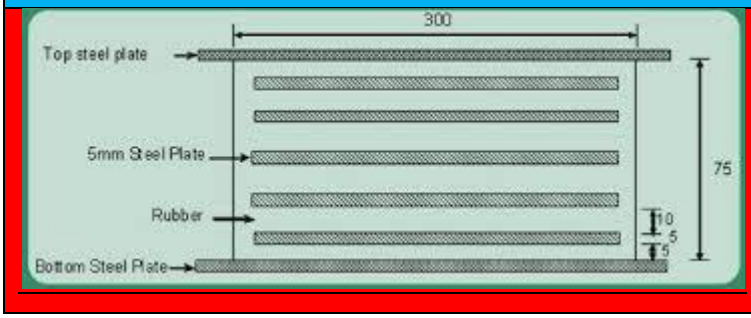
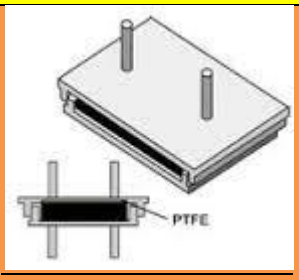
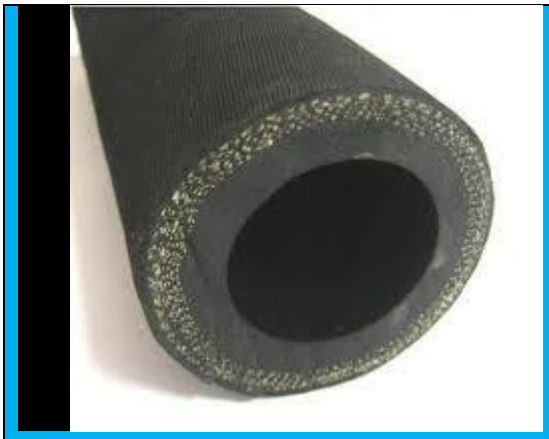
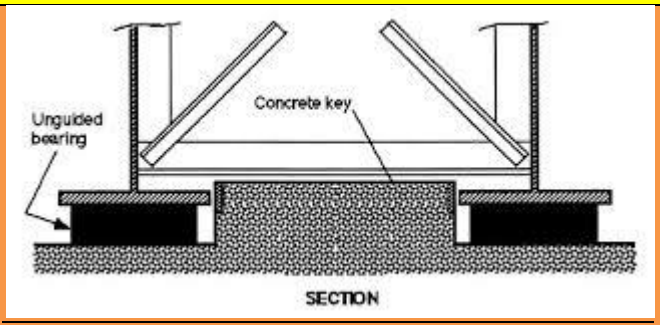

JingTong


300
Top steel plate
5mm Steel Plate
Rubber
Bottom Steel Plate
75
10
5
5


PTFE




Unguided bearing
Concrete key
SECTION

Technical Details

Sr No.	Test	Unit	Specification and Testing Method	Specimens
1	Hardness	IRHD	IS: 3400 (Part II) Cl.5.1.2.2	4.0mm (min) thickness of Test specimen
2	Tensile Strength	MPa	IS:3400 (Part I) Table 1 Type -1	Thick- 2.0 ±.0.20mm Width 6.0 ± 0.40mm Bench Mark-25..0mm (max)
3	Elongation at Break	%		
4	Adhesion Strength (Metal to Rubber	KN/M	IS:3400 (Part XIV) Cl.3.3	Length -125mm Width-25mm
5	Ash Content	%	IS:3400 (Part XXII) Cl. A-8.3.1 IS	1 g (min)
6	Polymer Identification	Chemically		0.5 g (min)
7	Percentage of Polymers	%		1 g (min)
8	Compression Set	%	IS: 3400 (Part X) Cl. 5.1	Thick -12.5 ± 0.50mm Dia-29 ± 0.50mm
9	Elastic Modulus	MPa	IRC 83 (Part II) 1987, UIC 772 -2R and MORTH	2 Nos from Finish Product
10	Shear Modulus	MPa		
11	Ultimate Compression Strength	MPa		One Specimen size of 100x200mm (Cutting Piece from Finish product.)
12	Stripping Strength (Adhesion Strength)	MPa		Two Specimen size of 100x 100mm (Cutting from Finish Product)
13	5MPa and 15 MPa Deflection Test	MPa	IRC 83 (Part II) 1987, and MORTH	100% on finish Product.

Sr No.	Test	Calculation
1	Cross Section	Thickness x Width of Dumbbell.
2	Tensile Strength	$\text{Tensile Strength} = \frac{\text{Breaking Load}}{\text{Cross Section}}$
3	Elongation at Break	$EB = \frac{\text{Breaking Length – Bench Mark (Initial Length)}}{\text{Bench Mark (Initial Length)}} \times 100$
4	Adhesion Strength	$\text{Adhesion Strength} = \frac{\text{Separation Load}}{\text{Width of Specimen}}$
5	Ash Content	$\text{Ash Content} = \frac{W3-W1}{W2-W3} \times 100$ W1- Empty Crucible Wt. W2- Crucible + Sample Wt. W3- Crucible + after ignition
6	Polymers Percentage	
I	Acetone Extraction for 96 cycles for 16 hours	$\text{Other Ingrediant} = \frac{W1-W2}{W1} \times 100$ W1- Sample Weight W2- After Acetone Extraction
Ii	Carbon Extraction for 2 hours	$\text{Carbon} = \frac{W1-W2}{W1} \times 100$ W1- Sample Weight after acetone extraction. W2- After carbon Extraction
Iii	Ash Content	$\text{Ash Content} = \frac{W3-W1}{W2-W3} \times 100$ W1- Empty Crucible Wt. W2- Crucible + Sample Weight after carbon extration. W3- Crucible + after ignition

7	**Polymer Identification as per (ASTM D297 and IS:3400 (Part XXII)**	
	Solution II- Initial Color – Green when react with fumes of sample should turn in to red	
8	**Compression Set**	Initial Thick –Recover Thick CS = ——————————— x 100 Compressed Thick Note: Compressed Thickness is 25% of Initial Thickness
Sr No.	**Test**	**Calculation**
9	**Physical Properties After Ageing**	
I	Change in Hardness	Hardness After Ageing – Hardness Before Ageing
Ii	Change in Tensile Strength	Tensile Strength After Ageing – Tensile Strength Before Ageing CTS = ——————————— x 100 Tensile Strength Before Ageing
Iii	Change in Elongation at Break	Elongation at Break After Ageing – Elongation at Berak Before Ageing CEB = ——————————— x 100 Elongation at Break Before Ageing
10	**Elastic Modulus**	
I	**Pad Area (Effective area of Bearing excluding cover common to that of laminate**	**A=l x b** **l- Length** **b- Width**
Ii	**Pressure (Kg/cm²)**	1 MPa = 10.1936 Kg/cm² αm, 2MPa = Initial Load (as per IRC 83 (Part II) 1987 2x 10.1936x Pad Area 2MPa = —————————— Vertical Cylinder Area N test,20MPa=Max Load (as per IRC 83 (Part II) 1987 20x 10.1936x Pad Area 20MPa = —————————— Vertical Cylinder Area
Iii	**Load on Bearing**	Pressure x Vertical Cylinder Area
Iv	**Average**	Deflection (D1 + D2+D3+D4) Average = —————————— 4
V	**Strain**	Deflection (Average) Strain = —————————— Total Rubber Thick x 2
vi	**Stress MPa**	Pressure Kg/cm2 Stress MPa = ——————————

		10.1936 x Pad Area ——————————— Vertical Cylinder Area
Sr No.	**Test**	**Calculation**
Vii	**Elastic Modulus**	$\alpha 20MPa - \alpha 10MPa$ Ea = ——————————— $E\ at\ \alpha 20MPa - E\ at \alpha 10MPa$ $Stress\ 20\ MPa - Stress\ 10\ MPa$ Ea = ——————————————————— $Strain\ at\ Stress\ 20MPa - Strain\ at\ Stress\ 10\ MPA$
11	**Shear Modulus**	
I	**Pad Area (Effective area of Bearing excluding cover common to that of laminate**	**A=l x b** **l- Length** **b- Width**
Ii	**Load on Bearing**	Pressure x Horizontal Cylinder Area
Iii	**Strain**	Deflection (mm) Strain = ——————————— Total Rubber Thick
Vi	**Stress MPa**	Load on Bearing Stress MPa = ——————————— 2 x 10.1936x Pad area
vii	**Shear Modulus**	$\tau\ at\ \gamma\ 1 - \tau\ at\ \gamma\ 0.2$ G = ——————————— $\gamma\ 1 - \gamma\ 0.2$ $Stress\ at\ Strain\ 1 - Stress\ at\ Strain 0.2$ G= ——————————————————— $\gamma\ \tau\ Strain\ 1 - Strain\ 0.2$
12	**Shape Factor**	Ratio of the one loaded surface area to the surface area free to bulge, for an internal layer of elastomeric (excluding side cover) $Effected\ area\ (lxb)$ S = ——————————————————— (l+b) x 2 x Thickness of Individual Elastomer (in cm) l = Length of Steel Laminate b = Width of Steel Laminate
13	**Ea Elastic Modulus**	1

		Ea = $\dfrac{}{0.2/(S)^2 + 0.0005}$

Sr No.	Test	Calculation
14	**Shear Modulus as per UIC 772-2R**	$G = \dfrac{\tau\ at\ Tan30\ Deg - \tau\ at\ Tan15\ Deg}{Tan30\ Deg - Tan15\ Deg}$ $G = \dfrac{Stress\ at\ Strain\ 30\ Deg - Stress\ at\ Strain\ 15\ Deg}{Strain\ 30\ Deg - Strain\ 15\ Deg}$
15	**Adhesion Strength Test as per UIC 772 – 2R**	**10 MPa Vertical Load** **Horizontal Load –2Tan** γ (Total rubber thickness x 2) Vertical Load Should be 10 MPa which should be given through out the test and Horizontal Load shall be increased gradually up to max (**2Tan** γ) $i.e.\ two\ times\ of\ total\ rubber\ thickness.$
16	**Ultimate Compressive Strength as per UIC 772 -2R**	66 MPa Vertical Load 1 MPa =10.19.6 Kg/cm2 $66\ MPa = \dfrac{66 \times 10.1936 \times \text{Test Specimen area}}{\text{Vertical Cylinder area}}$ Condition of Loading The ration of loading shall not exceed 10 MPa per minute the Vertical loading shall increase gradually up to 66 MPa
17	**Ultimate Compressive Strength as per IRC 83 (Part II) 1987**	60MPa Vertical Load 1 MPa =10.19.6 Kg/cm^2 $60\ MPa = \dfrac{60 \times 10.1936 \times \text{Test Specimen area}}{\text{Vertical Cylinder area}}$ Condition of Loading The ration of loading shall not exceed 10 MPa per minute the Vertical loading shall increase gradually up to 60 MPa
18	**Adhesion Strength as per IRC 83 (Part II)1987**	4.MPa Vertical Load 3MPa Horizontal Load 1 MPa =10.1936 kg/cm^2 $4\ MPa = \dfrac{4 \times 10.1936 \times \text{test Specimen area}}{\text{Vertical Cylinder area}}$ $3\ MPa = \dfrac{3 \times 10.1936 \times \text{Test Specimen area}}{}$

		Horizontal Cylinder area

Sr No	Test	Unit	MOSRTH	Ref	IRC	Ref	UIC	Ref
1.Physical Properties – Before Ageing								
i	Hardness	IRHD	60+5		60±5		60±5	ISO 6446 Cl. 6.2.1 Table - 3
ii	Tensile Strength	MPa	17.0 (min)		17.0 (min)		13.0 (min)	ISO 6446 Cl. 6.2.2 Table - 3
iii	Elongation at Break	%	400(min)		400 (min)		400 (min)	
2	Adhesion Strength	Kn/m	7 (min)		7 (min)		7 (min)	ISO 6446 Cl6.1.5 Table 3
3	Polymer		CR		CR		CR	ISO 6446 Cl. 4.1
4	Ash Content	%	5.0 (max)		5.0 (max)		Nil	
5	Compression Set	%	30 (max)		30 (max0		20 (max)	ISO 6446 Cl. 6.2.3 Table 3
6	Physical Properties – After Ageing							
i	Change in Hardness	IRHD	+15	Page 501	+15	Table 1 Cl.915.2	+15	ISO 6446 Cl. 6.2.4 Table 3
ii	Change in Tensile Strength	%	-15		-15		-15	
iii	Change in Elongation at Break	%	-40		-30		-40	
7	Elastic Modulus Ea	MPa	20 MPa	Page 508	20 MPa	Cl.10.5	11.0 MPa	UIC 772 2R Appendix-1 Cl.2.1.4.3
8	Shea Modulus	MPa	1.0 + 20%	Page 501	1.0 + 20%	Cl.9.2	1.0 + 15%	UIC 772 2R Appendix-1 Cl.3.1.3
9	Ultimate Compressive Strength	MPa	60 (min)	Page 508	60 (min)	Cl.12	66 (min)	UIC 772 2R Appendix-1 Cl.2.1.4.3

Sr No	Test	Unit	MOSRTH	Ref	IRC	Ref	UIC	Ref
10	Stripping Strength	MPa	VL-4MPa and HL- 3 MPa	Page 508	VL-4MPa and HL- 3 MPa		2xTanØ	UIC 772 2R Appendix-1 Cl.2.1.4.4
11	5 and 15 MPa Deflection Test	MPa	+20% of Mean Deflecation		+20% of Mean Deflecation			Nil
12	Dimension Test							
i	Length	Mm	+6	Page 503	+6		+5	UIC 772 2R Appendix-2 Cl. 2.2
ii	Width	Mm	+6		+6		+5	
iii	Thickness	Mm	+5%		+5%		+5%	

Thickness and Tolerance as per UIC 772 2R

≤ 30 mm	± 1.00 mm
≤ 50 mm	± 1.20 mm
≤ 80 mm	± 1.50 mm
≤ 120 mm	± 1.80 mm
$> 120mm$	± 1.50%