

**RITSUHA**

**RULING  
ROADS!**



**STREET  
OFF ROAD  
COMMERCIAL**



HIGH GRADE  
RAW MATERIAL



HIGH  
PERFORMANCE



ENHANCED  
DURABILITY



ALL WEATHER  
TYRES



[www.ritsukaparts.com](http://www.ritsukaparts.com)

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## Group Summary

We at Eastman Group strongly believe in the concept of constant innovation, and it is this very vision that has seen us emerge as one of India's finest and respected business conglomerates. Eastman Group has traced a route of growth that spans through four continents (over 62 countries). Our chairman Mr. Jagdish Rai Singhal gave shape to his vision in 1970 by forming what was to become the Eastman Group. He envisaged India as an independent strength – politically, economically and socially. In order to become a force that world should reckon with, the Eastman Group ventured into path breaking territory and pioneered developments in industries. Over the years, Eastman Group has ventured into business operations in several defined sectors like Materials, Engineering, Two wheelers Automotive and power source.  
[www.eaplworld.com](http://www.eaplworld.com)

## VISION

Eastman aspires to improve the value, wealth and well-being of all its stakeholders, thereby becoming the most preferred supplier in every country it operates in.

## MISSION

To become the most preferred supplier in the countries that we operate in, by offering top-quality, value-for-money products, made possible through aggressive sourcing quality products and building high efficiencies in value chain.



# WHAT WE DO?



**RITSUKA**  
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As leading manufacturers of a wide range of tyres and tubes we have established a niche market for our products/ services in many parts of the world. Our smooth manufacturing and distribution processes as well as top-quality products aspire to provide complete value for all stakeholders. Our exhaustive product catalogue is designed to cater to the needs of scooters, mopeds, off/ on-road motorcycles, moto-taxis, non-motorized industrial automobiles, carts, agricultural tractors and more. With years of experience and expertise in the manufacturing sector, our exclusive supply options are custom made to offer unmatched quality and benchmarked services. We use the latest manufacturing techniques to give you a competitive advantage with our cost conscious products.





#### Certification



#### TYRE DESIGNATION

1	Tyre Size : 180/3.00-18
2	Tread pattern designation : EY 022
3	Manufacturer : RITSUKA
4	Country of Origin : China
5	Speed Category : P (150 km/h)
6	Load Index : 52 (200 kg)
7	Tube Type : Tubeless
8	E-mark Marking : E4 - 75R - 011034
9	Production date
10	Load range : B
11	Max. Load capacity : Max. inflation pressure
12	Direction of rotation: Rotation
13	Tread wear indicator: TWI

## Tyre Marking





There are essentially three types of size marking used for motorcycle tyres :

- 1 Imperial
- 2 Imperial Low Profile

All of these systems describe the width (W), height (H) and rim diameter (dr) of a tyre size. The Tyre Aspect Ratio drawing (on the Wheels and Rims page) shows where these dimensions are measured from and the overall diameter (D).

The height of the tyre and hence its overall diameter (D) is controlled by the Aspect Ratio (Ar). Tyre sizes for all motorcycle tyres, except those for specialized non-road legal applications, (pure racing tyres, ATV tyres, etc.) are expressed as:

Width/Aspect Ratio - W/R Construction or Speed Symbol Rim diameter - dr For older Imperial sizes the Aspect Ratio is 100% and not shown.

For Example:

3.50 x 18 = 3.50" wide, 3.5" tail — 18" rim diameter)

For the older Imperial Low Profile series the Aspect Ratio was 90% but as the widths of the tyres were unique, it was not shown. Where the tyre width was not unique, or where the Aspect Ratio was not 90%, the actual Aspect Ratio was shown.

For Example:

4.10 x 19, where 4.10 is a unique width

4.10" wide 4.10 x 90% = 3.7" tail — 19" rim diameter

4.25/85-18, Where 4.25 is not a unique width and the Aspect Ratio is not 90%

4.25" wide/4.25 x 85% = 3.6" tail — 18" rim diameter

Perhaps the most easily understood size markings are the modern mill metric type.

For Example:

110/90-18

110 mm wide/110 x 90% = 99 mm tail — 18" rim diameter

The effect of changing the Aspect Ratio is to change the overall diameter of the tyre:

$D = W \times Ar \times 2 + (25.4 \times dr)$



load index				speed rating			
Index	Kg		Index	Kg		Code	Km/h
30	106		54	212		B	50
31	109		55	218		C	60
32	112		56	224		D	65
33	115		57	230		E	70
34	118		58	236		F	80
35	121		59	243		G	90
36	125		60	250		J	100
37	128		61	257		K	110
38	132		62	265		L	120
39	136		63	272		M	130
40	140		64	280		N	140
41	145		65	290		P	150
42	150		66	300		Q	160
43	155		67	307		R	170
44	160		68	315		S	180
45	165		69	325		T	190
46	170		70	335		U	200
47	175		71	345		H	210
48	180		72	355		V	240
49	185		73	365		Z	>240
50	190		74	375		W	270
51	195		75	387		(W)	>270
52	200		76	400			
53	206		77	412			



## Milestones



### 1970

First Export to Argentina & Ivory Coast by our chairman & CMD (Eastman Group) Mr. J R Singal.

### 1974

Our first export consignment gets dispatched to Thailand.

### 1978

Mr. J. R. Singal, our Chairman sets up a bicycle brake shoe manufacturing plant in Ludhiana, Punjab.

### 1982

"EASTMAN INDUSTRIES LIMITED" (E.I.L.), a corporate entity established as a first step to professionalize operations.

### 1986

"EASTMAN CAST & FORGE LTD" (E.C.F.L.) incorporated for export of hand tools.

### 1990

Major product and market expansion initiated. "EASTMAN" products are available in all major markets of South America and introduced in Mediterranean regions of Europe. E.C.F.L. adds garden and agriculture tools to its range.

### 1994

E.I.L. wins the "Latin America Focus" award as per the Foreign Trade Policy decided by Directorate of Foreign Trade, (Ministry of Commerce, Govt. of India).

### 1998

Both E.I.L. and E.C.F.L. certified ISO 9002 & ISO 9001 respectively.

### 1999

E.I.L. wins Focus LAC Award for outstanding Export performance in 1999-2000.

### 2000

E.I.L. wins "National Export Awards" for excellence in Exports.

### 2002

After a small beginning previous year, "EASTMAN INDUSTRIAL COMPANY" (E.I.C) is formed for export of two wheelers and their spare parts.

### 2005

E.C.F.L. wins the "EEPC INDIA" Excellence award 2005-06.

### 2006

"EASTMAN AUTO & POWER LIMITED" is incorporated for launch of Lead Acid Batteries E.C.F.L. wins the "EEPC INDIA" Excellence award 2006-07.

### 2007

E.I.L. awarded "Niryat Shree" for Excellence in exports.

### 2008

E.C.F.L. wins the "EEPC INDIA" Excellence award 2008-09.

### 2009

E.C.F.L. wins the "Energy Conservation - 2008" award as per the Punjab Energy development Agency.



## 2010

E.C.F.L. wins the "Energy Conser-vation Award" under the aegis of power ministry.

E.A.P.L. certificate ISO 9001:2008.

## 2012

Best Product Focus Exporter award from DnB

## 2013

EAPL awarded star-house exports Mr. Shekhar Singal, MD of EAPL receiving "Niryat Shree Award" for Excellence in exports from our Honorable Union Cabinet Minister of Commerce & Industry Shri Kamal Nath.

Merger of International operations into Eastman Auto & Power.  
Strategic tie-up in China for Motor-cycle Tyre manufacturing.

## 2014

Indian Branded sales cross INR 100 crore

Set-up of a lab in China for testing of all types of tyres. Enters Asian markets with its range of batteries and motorcycle tyres.

## 2015

On target to grow at a CAGR of 25% year-on-year



# STREET



## EM-02

Size	2.75-18
Rim	1.85
PR	6
Load Index	48
Speed	P
Application	Street



## EY-022

Size	3.00-17	3.00-18
Rim	1.85	1.85
PR	6	6
Load Index	50	52
Speed	L	P
Application	Street	Street



## EY-024

Size	2.25-16
Rim	1.6
PR	6
Load Index	36
Speed	L
Application	Street



## EY-030

Size	140/70-17
Rim	3.75
PR	6
Load Index	63
Speed	P
Application	Street



#### EY-015

Size	2.50-17	2.75-17	3.00-17	3.00-18	2.75-18
Rim	1.60	1.85	1.85	1.85	1.85
PR	6	6	6	6	6
Load Index	43	47	50	52	48
Speed	P	L	P	P	P
Application	Street	Street	Street	Street	Street



#### EY-029

Size	70/80-17	70/90-17	80/80-17	80/90-17	80/100-14	2.75-18	90/80-17	2.50-17	3.00-18
Rim	1.60	1.60	1.85	1.85	1.85	1.85	2.15	1.60	1.85
PR	6	6	6	6	6	6	6	6	6
Load Index	40	43	41	50	49	48	46	43	52
Speed	L	P	P	P	L	P	L	P	P
Application	Street	Street	Street	Street	Street	Street	Street	Street	Street



#### EY-057

Size	2.75-18	3.00-17	3.00-18	110/70-17	130/90-16
Rim	1.85	1.85	1.85	3.00	3.00
PR	6	6	6	6	6
Load Index	48	50	52	60	73
Speed	P	P	P	P	P
Application	Street	Street	Street	Street	Street







**EY-034**

Size	80/100-14	100/90-17	110/90-17	2.75-18	90/90-18	130/80-18	100/90-19	120/80-18	110/80-18
Rim	1.85	2.50	2.50	1.85	2.15	3.5	2.50	2.75	2.50
PR	6	6	6	6	6	6	6	6	6
Load Index	49	61	66	48	57	66	63	68	65
Speed	L	P	P	P	P	P	P	P	P
Application	Street	Street	Street	Street	Street	Street	Street	Street	Street

Size	90/90-21	2.75-17	80/90-21	3.00-17	110/90-16	90/90-19	3.00-18	2.50-17	4.10-18	100/90-18
Rim	2.15	1.85	2.50	1.85	2.50	2.15	1.85	1.60	2.15	2.50
PR	6	6	6	6	6	6	6	4 & 6	6	6
Load Index	54	47	61	50	65	58	52	43/45	63	62
Speed	P	P	P	L	P	P	P	L	L	P
Application	Street	Street	Street	Street	Street	Street	Street	Street	Street	Street



**EY-111**

Size	130/60-13
Rim	3.50
PR	6
Load Index	56
Speed	P
Application	Street



**EY-032**

Size	90/90-18
Rim	2.15
PR	6
Load Index	57
Speed	P
Application	Street



EY-061

Size	2.50-17	2.75-17	110/80-17	80/100-14	3.00-17	120/70-12	90/90-18	3.00-18	90/90-17	2.75-18
Rim	1.60	1.85	2.50	1.85	1.85	2.75	2.15	1.85	2.15	1.85
PR	6	6	6	6	6	6	6	6	6	6
Load Index	43	47	63	49	50	58	57	52	56	48
Speed	P	P	P	L	P	J	P	P	P	P
Application	Street	Street	Street	Street	Street	Street	Street	Street	Street	Street

Size	130/70-12	100/90-18	120/90-10	110/90-17	130/90-10	3.50-18	130/60-13	3.50-10	130/90-18	90/90-19
Rim	3.50	2.50	2.75	2.5	3	2.15	3.5	2.5	3.5	2.15
PR	6	6	6	6	6	6	6	6	6	6
Load Index	58	62	71	66	75	62	60	56	66	58
Speed	J	P	L	P	L	P	P	J	P	P
Application	Street	Street	Street	Street	Street	Street	Street	Street	Street	Street



EY-191

Size	90/90-17	90/90-18	120/80-17	100/80-18	110/80-17
Rim	2.15	2.15	2.75	2.50	2.50
PR	6	6	6	6	6
Load Index	56	57	67	59	66
Speed	P	P	P	P	P
Application	Street	Street	Street	Street	Street





EY-126

Size	2.75-18	3.00-18	110/90-16	90/90-19	110/90-17	4.10-18	90/90-18	2.75-21
Rim	1.85	1.85	2.5	2.15	2.5	2.15	2.15	1.85
PR	6	6	6	6	6	6	6	6
Load Index	48	52	52	58	66	63	57	52
Speed	P	P	J	P	P	L	P	P
Application	Street	Street	Street	Street	Street	Street	Street	Street



EY-198

Size	90/90-17	110/70-17	130/70-17	120/80-17
Rim	2.15	3	3.5	2.75
PR	6	6	6	6
Load Index	56	60	68	67
Speed	P	P	P	p
Application	Street	Street	Street	Street



**EY-200**

Size	4.10-18
Rim	2.15
PR	6
Load Index	59
Speed	P
Application	Street

**EY-201**

Size	2.25-16
Rim	1.60
PR	2 & 4
Load Index	36
Speed	L
Application	Street

**EY-210**

Size	3.00-18	2.50-17	3.50-16
Rim	1.85	1.6	2.15
PR	6	4 & 6	6
Load Index	52	43	58
Speed	P	L	P
Application	Street	Street	Street

**EY-217**

Size	3.00-18	2.75-18	3.50-17
Rim	1.85	1.85	2.15
PR	6	6	6
Load Index	52	48	58
Speed	P	P	P
Application	Street	Street	Street

**EY-213**

Size	2.75-21
Rim	1.85
PR	6
Load Index	52
Speed	P
Application	Street

**EY-215B**

Size	3.50-16
Rim	2.15
PR	6
Load Index	58
Speed	P
Application	Street



2.75-17  
2.15  
6  
58  
P  
Calle



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**EY-311**

Size	2.75-17	3.00-17	90/90-17	80/100-14	3.50-18	110/90-17	120/90-10	130/90-10
Rim	1.85	1.85	2.15	1.85	2.15	2.50	2.75	3
PR	6	6	6	6	6	6	6	6
Load Index	47	50	56	49	62	66	71	75
Speed	P	P	P	L	P	P	L	L
Application	Street	Street	Street	Street	Street	Street	Street	Street

Size	2.75-18	3.00-18	90/90-18	120/70-12	130/70-12
Rim	1.85	1.85	2.15	2.75	3.50
PR	6	6	6	6	6
Load Index	48	52	57	51	56
Speed	P	P	P	J	J
Application	Street	Street	Street	Street	Street



**EY-229**

Size	2.75-17
Rim	1.85
PR	6
Load Index	47
Speed	P
Application	Street



**EY-234**

Size	3.00-10	3.50-10
Rim	2.15	2.50
PR	6	6
Load Index	47	56
Speed	J	J
Application	Street	Street



**EY-396**

Size	120/90-10	3.50-10	130/60-13	130/90-10	90/90-12
Rim	2.75	2.5	3.5	3.5	2.15
PR	6	6	6	6	6
Load Index	71	56	60	75	54
Speed	L	P	P	L	J
Application	Street	Street	Street	Street	Street

**EY-600A**

Size	2.75-14
Rim	1.85
PR	6
Load Index	41
Speed	P
Application	Street

**EM-430**

Size	130/90-15	110/90-16
Rim	3.00	2.50
PR	6	6
Load Index	72	65
Speed	P	P
Application	Street	Street

**EY-602**

Size	2.50-17
Rim	1.60
PR	4 & 6
Load Index	43
Speed	P
Application	Street

**EY-458**

Size	90/90-17	100/80-17	120/80-17	80/100-17	110/80-17
Rim	2.15	2.5	2.75	1.85	2.5
PR	6	6	6	6	6
Load Index	56	58	67	53	63
Speed	P	P	P	P	P
Application	Street	Street	Street	Street	Street

**EY-603**

Size	3.00-18
Rim	1.85
PR	6
Load Index	52
Speed	P
Application	Street







**EY-722**

Size	4.60-18
Rim	3.00B
PR	6
Load Index	63
Speed	P
Application	Street



**EY-810**

Size	2.75-17
Rim	1.85
PR	6
Load Index	47
Speed	P
Application	Street



**EY-819**

Size	2.50-17	2.75-17	3.00-18	2.75-18
Rim	1.6	1.85	1.85	1.85
PR	6	6	6	6
Load Index	43	47	52	48
Speed	L	L	P	P
Application	Street	Street	Street	Street



**EY-807**

Size	2.75-14	3.00-14
Rim	1.85	1.85
PR	6	6
Load Index	41	45
Speed	P	P
Application	Street	Street



**EY-822**

Size	2.50-18
Rim	1.60
PR	6
Load Index	45
Speed	P
Application	Street



**EY-828**

Size	90/90-18
Rim	2.15
PR	6
Load Index	57
Speed	P
Application	Street

**EY-831**

Size	130/60-13
Rim	3.50
PR	6
Load Index	60
Speed	P
Application	Street

**EY-844**

Size	3.50-10
Rim	2.50
PR	6
Load Index	56
Speed	J
Application	Street

**EY-846**

Size	110/90-16	3.00-17	3.00-18
Rim	2.50	1.85	1.85
PR	6	6	6
Load Index	65	50	52
Speed	P	L	P
Application	Street	Street	Street

**EY-850**

Size	2.50-17
Rim	1.85
PR	4 & 6
Load Index	52
Speed	P
Application	Street

**EY-984**

Size	60/80-17
Rim	1.60
PR	6
Load Index	38
Speed	P
Application	Street

**EY-892**

Size	90/90-18	100/90-18
Rim	2.15	2.50
PR	6	6
Load Index	57	62
Speed	P	P
Application	Street	Street







#### EY-2303

Size	130/70-12
Rim	3.5
PR	6
Load Index	58
Speed	J
Application	Street



#### EY-2304

Size	120/70-12
Rim	2.75
PR	6
Load Index	62
Speed	J
Application	Street



#### EY-1081-2

Size	80/90-17	80/100-18	90/80-17
Rim	1.85	1.85	2.15
PR	6	6	6
Load Index	50	54	46
Speed	P	P	P
Application	Street	Street	Street



#### EY-2400

Size	100/90-17	130/70-17
Rim	2.5	3.5
PR	6	6
Load Index	61	62
Speed	L	P
Application	Street	Street



#### EY-2306

Size	140/60-17
Rim	3.75
PR	6
Load Index	63
Speed	P
Application	Street



#### EY-2305

Size	90/90-18	2.50-17	90/90-17	2.75-17	80/100-14	2.75-18
Rim	2.15	1.6	2.15	1.85	1.85	1.85
PR	6	6	6	6	6	6
Load Index	57	43	56	47	49	48
Speed	P	P	P	P	L	P
Application	Street	Street	Street	Street	Street	Street



**EY-6011**

Size	70/80-17	90/90-18	2.50-18	70/90-17	80/90-17
Rim	1.60	2.15	1.60	1.60	1.85
PR	6	6	6	6	6
Load Index	36	57	45	43	50
Speed	L	P	P	P	P
Application	Street	Street	Street	Street	Street

**EY-2300**

Size	70/90-18	110/90-18	140/70-17	130/70-17	90/90-18	110/80-17	90/90-17	100/80-17	110/70-17	120/80-17
Rim	1.6	2.5	3.75	3.7	2.15	2.5	2.15	2.5	3	2.75
PR	6	6	6	6	6	6	6	6	6	6
Load Index	44	61	66	62	57	63	56	52	54	67
Speed	K	P	P	P	P	P	L	P	P	P
Application	Street	Street	Street	Street	Street	Street	Street	Street	Street	Street

**EY-2500**

Size	130/80-17	90/90-19	110/90-17	90/90-21	120/80-18
Rim	3	2.15	2.5	1.85	2.75
PR	6	6	6	6	6
Load Index	65	58	66	54	68
Speed	P	P	P	P	P
Application	Street	Street	Street	Street	Street



# COMERCIAL



## EY-663

Size	4.00-8
Rim	2.5
PR	2
Load Index	55
Speed	F
Application	Hand Cart



## EY-852

Size	4.50-12	5.00-12
Rim	3.00B	3.50B
PR	8	8
Load Index	77	83
Speed	K	K
Application	Comercial	Comercial



## EY-869A

Size	5.00-12
Rim	3.50B
PR	8
Load Index	83
Speed	K
Application	Comercial



**EM-03**

Size	3.00-18
Rim	1.85
PR	6
Load Index	48
Speed	P
Application	Mototaxi



**EM-04**

Size	3.00-18
Rim	1.85
PR	6
Load Index	52
Speed	P
Application	Mototaxi



**EM-05**

Size	3.00-18
Rim	1.85
PR	6
Load Index	52
Speed	P
Application	Mototaxi



**EM-010**

Size	3.00-17	3.00-18
Rim	1.85	1.85
PR	6	6
Load Index	50	52
Speed	p	P
Application	Mototaxi	Mototaxi

MOTOTAXI





OFF ROAD



**EM-06**

Size	110/90-16	4.10-18	90/100-16	3.00-21	3.00-17	2.75-18	3.00-18	90/90-18
Rim	2.5	2.15	2.15	1.85	1.85	1.85	1.85	2.15
PR	6	6	6	6	6	6	6	6
Load Index	65	63	58	57	50	48	52	57
Speed	P	P	P	P	L	L	P	L
Application	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road



**EM-09**

Size	110/100-18	100/100-17
Rim	2.5	2.5
PR	6	6
Load Index	70	64
Speed	P	P
Application	Off Road	Off Road



**EY-035**

Size	110/90-16
Rim	2.5
PR	6
Load Index	65
Speed	P
Application	Off Road



**EM-08**

Size	130/90-16
Rim	3
PR	6
Load Index	73
Speed	P
Application	Off Road



**EM-07**

Size	2.75-17	3.00-17	110/90-16	3.00-21	2.75-18	4.60-17	3.00-18	110/90-13
Rim	1.85	1.85	2.5	1.85	1.85	2.15	1.85	2.5
PR	6	6	6	6	6	6	6	6
Load Index	47	50	65	57	48	66	52	56
Speed	P	P	P	P	P	P	P	P
Application	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road

Size	3.50-17	3.50-18	3.00-19	4.10-18
Rim	2.15	2.15	1.85	2.15
PR	6	6	6	6
Load Index	60	62	54	63
Speed	P	P	P	P
Application	Off Road	Off Road	Off Road	Off Road



**EY-157**

Size	4.10-18	4.60-17	3.00-18	100/90-18	4.10-17	110/90-17	110/80-18	2.75-17
Rim	2.15	3.00B	1.85	2.50	2.15	2.5	2.50	1.85
PR	6	6	6	6	6	6	6	6
Load Index	59	67	52	62	58	66	65	47
Speed	P	L	P	P	P	P	P	P
Application	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road

Size	120/80-18	80/100-21	100/90-17	90/90-19
Rim	2.75	1.85	2.50	2.15
PR	6	6	6	6
Load Index	68	51	61	58
Speed	P	M	P	P
Application	Off Road	Off Road	Off Road	Off Road







**EY-156**

Size	120/80-18
Rim	2.75
PR	6
Load Index	68
Speed	P
Application	Off Road



**EY-434**

Size	4.10-18
Rim	2.15
PR	6
Load Index	59
Speed	P
Application	Off Road



**EY-801A**

Size	3.00-18
Rim	1.85
PR	6
Load Index	52
Speed	L
Application	Off Road



**EY-2977**

Size	2.50-17	2.75-17	4.10-17	3.00-18
Rim	1.60	1.85	2.15	1.85
PR	6	6	6	6
Load Index	43	47	58	52
Speed	P	P	P	P
Application	Off Road	Off Road	Off Road	Off Road



## Quality



We believe in offering high quality products and services that are a result of continual improvement in technology, safety features, cost and services. Years of experience and optimum levels of dedication have gone into the making of the bench-marked quality quotients that we boast of today. From stringent tests conducted on incoming raw material to quality checks and endurance tests performed on finished goods; our strict quality standards are specifically designed to take you to your destination, in the safest manner possible.

## Laboratory

The EASTMAN TYRE DEVELOPMENT & ANALYSIS CENTRE is a subsidiary of Eastman Auto & Power Ltd., endeavoring in developing & testing of motorcycles tires, ETDAC follows test methods to evaluate and optimize tire performance over a broad range of on- and off- road conditions. ETDAC assists in tailoring tests to provide solutions in a timely and effective manner.



### Plunger test

This test method covers the determination of tire plunger energy required to completely penetrate the tread area of an inflated tyre as indicated by a rupture, loss of inflation pressure, sudden drop in plunger force or bottom-out. The test requires Plunger machine capable of slowly penetrating thread surface of a tyre with a plunger having a hemispherical end (8 mm dia for m/c tyres). Machine used for testing physical properties such as Young Modulus, Tensile strength and elongation at break.

### High Speed Tyre Endurance Machine

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## RESEARCH AND DEVELOPMENT



## Tensile testing machine

### Tensile testing



Tensile tests measure the force required to break a specimen and the extent to which the specimen stretches or elongates to that breaking point. Tensile tests produce a stress-strain diagram, which is used to determine tensile modulus. The data is often used to specify a material, to design parts to withstand application force and as a quality control check of materials. Since the physical properties of rubber can vary depending on ambient temperature, it is sometimes appropriate to test materials at temperatures that simulate the intended end user environment.

### Abrasion testing

Abrasion resistance is a performance factor of paramount importance for many rubber products, such as tires, conveyor belts, power transmission belts, hoses, footwear, and floor covering. A test capable of measuring resistance to abrasion of rubber, including uniformity of wear behavior under abrasive/frictional service conditions is therefore highly desirable. This test method may be used to estimate the relative abrasion resistance of different rubbers. Since conditions of abrasive wear in service are complex and vary widely, no direct correlation between this accelerated test and actual performance can be assumed.

### Ash content

This test is to determine the ash content of organic material

## How we ensure quality

- Dimensional measurements of tyre overall width, tyre overall diameter, skid depth, etc.
- Tyre strength test (plunger test).
- Endurance test.
- High speed performance test & % dynamic growth test.
- Physical properties of sidewall & rubber.
- Tensile strength test.
- Elongation test



## Tyre pressure



Always inflate the tyre to the correct pressure. Be sure to check cold inflation pressure frequently, i.e. once a week. Although most motorcyclists love to work on their bikes, they seldom remember to check tyre pressures. Correct tyre pressure, however, is critical for safe handling. Over inflation or extreme tyre pressure will impair your riding comfort and decrease the contact of the tyre with the road.

Under inflation or too little air pressure will result in poor handling and the bike will be inclined to "wander". Improper and insufficient tyre pressure will also cause rapid tyre wear, an increase in fuel consumption, lower top speed, and provide less control.

Remember to check the inflation pressure of your tyres weekly. You will find the correct pressure in the operating manual of the motorcycle.

### Attention:

When the recommended pressure has been changed for use off-road (race track, off-road), it must be reset to the correct value before riding on the street.

## Cautions

To avoid the danger of air leakage, use only balancing weights which are approved by the motorcycle manufacturer, e.g. spoke



nipple weights, lead wire or self adhesive rim weights. We do not recommend the use of liquid balancers or liquid balance/sealers. EASTMAN does not guarantee tyres into which these have been injected.

### Load capacity:

Tyres are offered in different load carrying capacities. It is extremely important not to exceed the max load rating. You must take the weight of the motorcycle, the weight of any optional equipment, as well as the weight of a passenger and the total has not to be higher than the approved tyres load capacity indicated by the motorcycle manufacturers. A tyre's load carrying ability can be reduced by under inflation.

## Different patterns

EASTMAN offers both front and rear tyres in different profiles and for different types of use, so that the front and rear tyre can



complement each other. It is not allowed to fit, for example, a street tyre with an off-road tyre.

# TECHNICAL GUIDE/ GENERAL INSTRUCTION





## Valve caps

Centrifugal forces work on the valve stem. At high speeds they have the same effect as pushing on the valve with your finger. The tyre can deflate. The valve cap is the only part preventing it. Normally this phenomenon happens only at very high speeds. But an old or low quality valve stem can open at speeds lower than 200 km/h.

Therefore the cap should always be tightly closed. EASTMAN suggests the use of airtight metal caps with rubber seal.



## Replacing a worn tyre



Remember, Precise matching of front and rear tyres is necessary to obtain optimum performance and handling. When fitting a new front tyre, check the wear on the rear tyre. A new front tyre combined with worn rear tyre may cause instability. Please bear in mind that many other factors can affect the handling of a motorcycle, including the weight and height of the rider, and the addition of luggage or fringing. Please consult the motorcycle manufacturer before making non-standard modifications.

## Speed ratings

The speed index (SI) indicates the maximum speed the tyre is homologated for. Even if EASTMAN tyres allow high speed performance ability, we do not recommend the use of any of our products in excess of legal speed limits. Tyres can have the same pattern and size, but a different speed rating, this is due to the tyre construction and therefore they will perform differently. When selecting your new EASTMAN motorcycle tyres, be sure to choose the right speed rating.

Maximum speed capability varies from size to size, but is always equal to or greater than that of the original equipment tyres when fitted in accordance with EASTMAN'S recommendations. The use of a tyre with a higher speed rating (e.g. "H" instead of "S") is allowed only, if it is listed in the fitment chart.

Especially in cases where the speed rating exceeds 210 km/h, the EASTMAN recommendations must be respected. Some tyres bear a letter "speed rating" designation indicating the tyre's design speed capability. This speed rating system is intended to allow you to compare the speed capabilities of tyres.

When purchasing or replacing speed-rated tires, make sure to:

Use the rankings in the chart below to compare the speed ratings of all the tyres, and follow the motorcycle manufacturer's recommendations, if any, concerning the use of speed-rated tyres. To avoid reducing the speed capability of the motorcycle, replace a speed-rated tyre only with another tyre having at least the same speed rating. Remember, it's the "top speed" of the "slowest" tyre on the vehicle, which cannot be exceeded without risk of tyre failure. The letter symbols and corresponding design speeds are: Speed-Rating Symbol Speed Category.

- In laboratory tests that relate directly to highway speeds. Reminder: Actual tyre speed and performance capability depends on factors such as inflation, pressure, load, tyre condition, wear and driving conditions.
- Although no upper limit speed is specified here, the indicated tyres nonetheless have limited rated speed capability.

## Tyre mounting



### Important information warning

Tyres are only to be used on vehicles for which motorcycle tyres were originally approved by the manufacturer. Any other use can be dangerous. Check if the tyre has directional arrows. If it does, you must mount the tyre so that the arrow points in the direction of rotation.

To seat the bead:

Remove the valve stem core and inflate the tyre. For safety reasons do not inflate motorcycle tyres to more than 40 psi (2, 8 bar); for scooters tyres do not exceed 150 % of the indicated maximum pressure. Be sure to reinstall the valve stem core and inflate the tyre/tube to the recommended riding pressure. Check the bead control lines for proper seating. If the beads are not properly seated, you will have to deflate the tyres/tubes and repeat the above procedure.

## Tread Depth

Legally the tyre has to be changed accordingly to the national law. EASTMAN recommends changing tyres when the remaining tread depth is below 2 mm.

## Tyre repair

**Tubeless Tyres :** Due to the specific regulations of different national governments, we cannot give a general recommendation regarding tyre repair. Please refer to your distributor for information on your country's regulations. In case you are allowed to repair a tyre, we recommend that you repair only small punctures which are restricted to the tread area, by using a mushroom head type plug. The repairer is solely responsible for the repair and any instructions given to the user concerning the repaired tyre. Repaired tubeless tyres should never be used with a tube.

**Tube type tyres:** Tube repair is not permitted. Punctured tube type tyres must have a new tube fitted. If punctured, in addition to having the replaced, the tyre and the rim have to be inspected by an expert. The puncture in the tyre should be repaired by a local vulcanization, executed by a tyre repairer, so as to prevent moisture from attacking the tyre casing. The repairer is solely responsible to the user for the repair and any inspection of the repaired tyre.

# TYRE MOUNTING





## Tyre Selection

When choosing your new Eastman motorcycle tyres, you must make sure that they meet the requirements of your motorcycle and that they are suitable for the types of road you intend to ride on.

## Valve caps

Centrifugal forces work on the valve stem. At high speeds they have the same effect as pushing on the valve with your finger. The tyre can deflate. The valve cap is the only part preventing it. Normally this phenomenon happens only at very high speeds. But an old or low quality valve stem can open at speeds lower than 200 km/h. Therefore the cap should always be tightly closed. EASTMAN suggests the use of airtight metal caps with rubber seal.



## Vehicle fitment and size matching

When choosing tyres always make sure that the selected tyres matches the sizes, load capacity and speed index of the homologated tyre recommended by the vehicle manufactures:



- Load and speed index must not be lower as indicated in the operating manual of the motorcycle.
- When fitting a new tyre check that there is no interfering with any mechanical parts of the vehicle especially at different running conditions.

### Note :

Variations of tyre size from those indicated by vehicle manufacturers, even if technically possible, must be in accordance with existing local regulations.





## Wheel alignment

Be sure to align your wheels every time the rear wheel is removed or the chain adjusted. Every rotation of an incorrectly aligns wheel results in an additional tread wear, decreases tyre mileage, and affects steering and cornering.

## Wheel balancing



Elastic bodies like tyres cannot be constructed in a perfect, circular form, with perfect balance. Therefore, be sure to balance a new tyre after in-stalling it. There are two ways to balance a tyre: static and dynamic balancing. Static balancing can be performed without rotating the wheel, and also measures the deviation of masses with respect to the wheel's center plane. EASTMAN recommends dynamic balancing for rims over 2.5



## Storage of tyres

Receipt of tyres - Area of conservation



In bad weather conditions, unloading at the time of receipt must be carried out in a covered area; in any event, if water is found inside the tyres, this must be removed immediately. Unloading must not be carried out by dropping the tyres or by any other method which could damage the quality or visual aspect of the tyres. Tyres must not be moved by inserting the forks of a fork lift truck through the center of a tyre which could damage the bead area.

Tyres must be stored inside a clean, dry and ventilated area, protected from direct sunlight or other source of artificial light (illumination must be realized with lamps of low ultraviolet and infrared emission). In the case of temporary external storage, the tyres must be covered (e.g. with an impermeable opaque material) and protected from contact with water and humidity.

## Temperature

The storage temperature must be less than 35°C and preferably less than 25°C. A temperature greater than 50°C, especially if stock rotation is not sufficient, can result in accelerated forms of deterioration, such as to reduce the duration in use of the tyre. Avoid contact with heaters and radiators. Very low temperatures in the storage area are not in themselves damaging, but can provoke rigidity of the tyre. In this case, they must not be deformed during movement or fitting. If they are destined to be used immediately they are released from storage, it is necessary to keep them for a few hours in an area with a temperature of approximately 20°C.

## Oxygen, ozone and chemical substances

Appliances which generate ozone must not be introduced into the storage area, also gas and vapors from combustion which can generate ozone via photo-chemical processes must be excluded from the area. Neither the area or the equipment in the storage location must present traces of solvents, inflammable materials, lubricants, chemical products, acids, disinfectants, rubber solutions, etc. which could prejudice not only the visual aspect but also the characteristics of the product.



## Deformation

The tyres should not be subjected to any tension or compression, as it will lead to deformation.



## Inner tubes and valves



Whether inner tubes are supplied by the producer in single boxes, large boxes or wrapped in plastic film, it is always preferable to maintain the original packaging. In alternative they can be stored also slightly inflated, inserted within the tyre, or piled deated, up to a

maximum height of 50 cm, on racking shelves with a closed base, accurately avoiding that the valve can damage the surface of the tube when squashed under the pressure of their own weight. Ensure that the tubes do not overlap the edge of the plane on which they are stored to avoid accidental laceration.

It is not recommended to store on slatted pallets because the pressure applied to the tubes will not be uniform. Do not hang inner tubes during storage. Valves should be stored in their packaging in a clean, well ventilated and dry location.

## Stock rotation

The storage location must be organized in such a way as to guarantee constant stock rotation, limiting to the minimum the storage period of the tyres. Products which enter storage first must be the first to leave. First in, first out.







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