

RULING ROADS!

STREET
OFF ROAD
COMMERCIAL









ALL WEATHER



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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, economi-cally 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

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 topquality, value-for-money products, made possible through aggressive sourcing quality products and building high efficiencies in value chain.

WHAT WE DO?

Harder compound rubber down the middle of the tyre for maximum durability



As leading manufacturers of a wide range of tyres and tubes we have established a niche market for

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

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

techniques to give you a competitive advantage with our cost conscious products.

our products/ services in many parts of the world.

automobiles, carts, agricultural tractors and more.

Multiple rubber compounds built into tread design

More Mileage. More Traction.



4



E⁴ **UNEN** (m)CNAS CE sôn 2 NOM

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	Emark 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



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6

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.

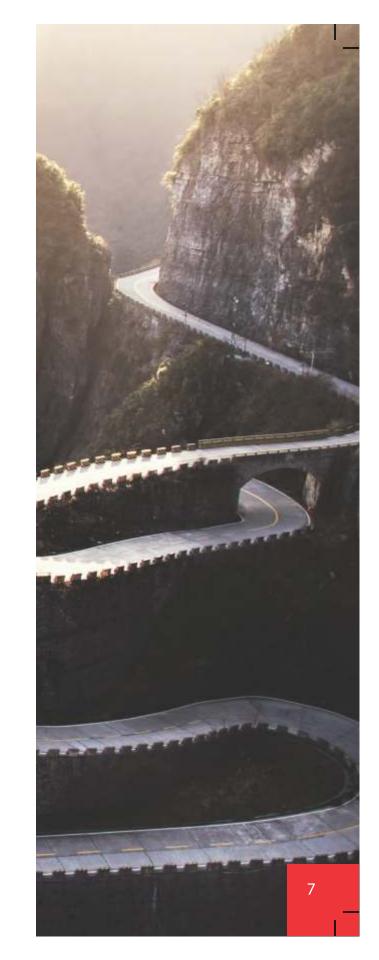
For Example: 3.50 x 18 = 3.50" wide, 3.5" tail — 18" rim diameter)

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 4.1 Ox 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 x Ar x 2 + (25.4xdr)



			load index				
Index	Kg	Index	Kg	Index	Kg	Code	Km/h
30	106	54	212	78	425	В	50
31	109	55	218	79	437	С	60
32	112	56	224	80	450	D	65
33	115	57	230	81	462	E	70
34	118	58	236	82	475	F	80
35	121	59	243	83	487	G	90
36	125	60	250	84	500	J	100
37	128	61	257	85	515	К	110
38	132	62	265	86	530	L	120
39	136	63	272	87	545	М	130
40	140	64	280	88	560	Ν	140
41	145	65	290	89	580	Р	150
42	150	66	300	90	600	Q	160
43	155	67	307	91	615	R	170
44	160	68	315	92	630	S	180
45	165	69	325	93	650	т	190
46	170	70	335	94	670	U	200
47	175	71	345	95	690	н	210
48	180	72	355	96	710	V	240
49	185	73	365	97	730	Z	>240
50	190	74	375	98	750	W	270
51	195	75	387	99	775	(W)	>270
52	200	76	400	100	800		
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

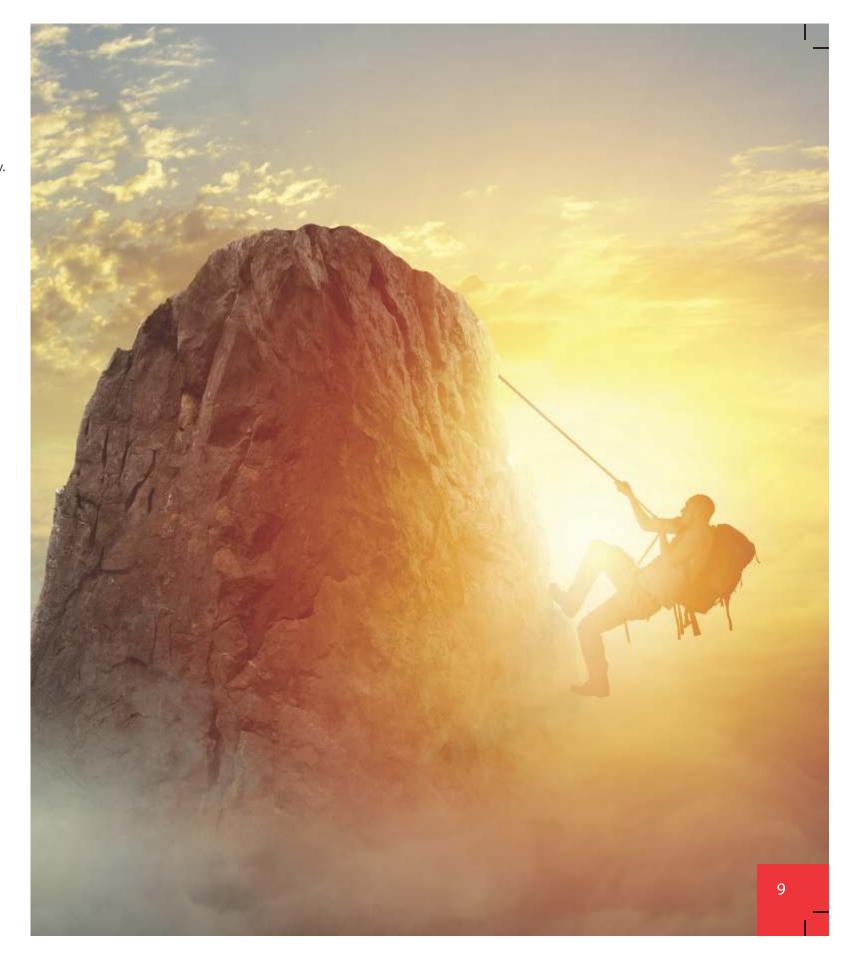
EAPL awarded star-house exports Mr. Shekhar Singal, MD of EAPL receiving "Niryat Shree Award" for Excellence in exports from our Honorable Union Cabinet Minister of Commerce & Industry Shri Kamal Nath. Merger of International operations into Eastman Auto & Power. Strategic tie-up in China for Motor-cycle Tyre manufacturing.

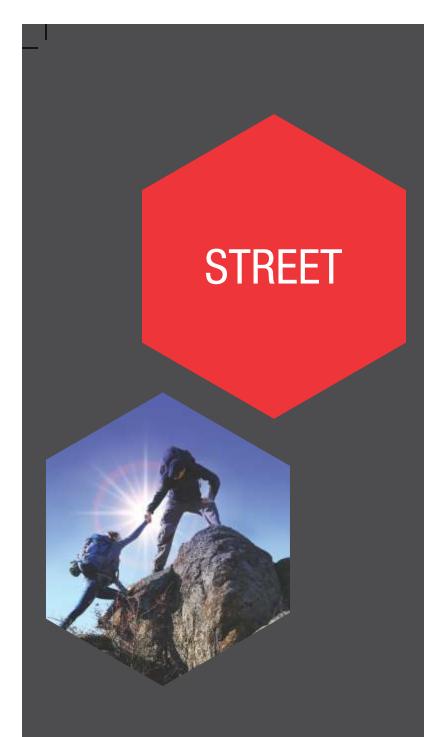
2014

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









EM-02	
Size	2.75-18
Rim	1.85
PR	6
Load Index	48
Speed	Р
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	Р
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	Р
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	Р	L	Р	Р	Р			
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	Р	Р	Р	L	Р	L	Р	Р
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	Р	Р	Р	Р	Р
	Application	Street	Street	Street	Street	Street







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	Р	Р	Р	Р	Р	Р	Р	Р
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	Р	Р	Р	L	Р	Р	Р	L	L	Р
Application	Street									



EY-111	
Size	130/60-13
Rim	3.50
PR	6
Load Index	56
Speed	Р
Application	Street



EY-032	
Size	90/90-18
Rim	2.15
PR	6
Load Index	57
Speed	Р
Application	Street



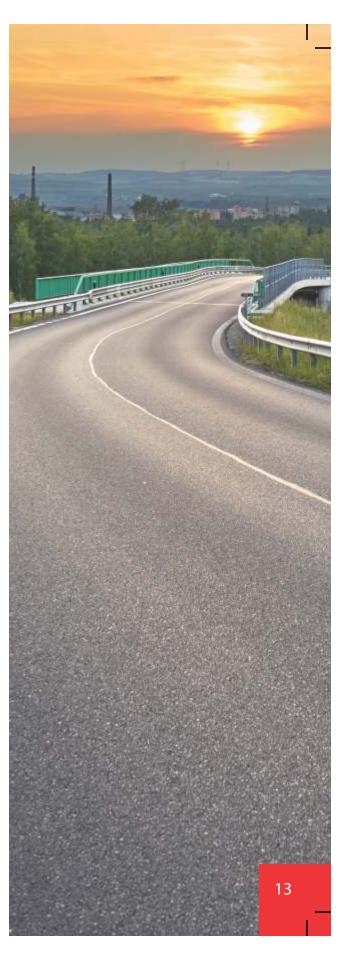
Size	2.50-17	2.75-17	110/80-17	80/100-14	3.00-17	120/70-12	90/90-18	3.00-18	90/90-17	2.75-18
Rim	1.60	1.85	2.50	1.85	1.85	2.75	2.15	1.85	2.15	1.85
PR	6	6	6	6	6	6	6	6	6	6
Load Index	43	47	63	49	50	58	57	52	56	48
Speed	Р	Р	Р	L	Р	J	Р	Р	Р	Р
Application	Street	Street	Street	Street	Street	Street	Street	Street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



EY-	198
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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	Р	Р	Р	р
Application	Street	Street	Street	Street



E1-200	
Size	4.10-18
Rim	2.15
PR	6
Load Index	59
Speed	Р
Application	Street

3.00-18 2.50-17

1.6

43

L

Street

4&6

1.85

6

52

Ρ

Street

3.50-16

2.15

6

58

Ρ

Street



EY-201	
Size	2.25-16
Rim	1.60
PR	2 & 4
Load Index	36
Speed	L
Application	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	Р	Р	Р
	Application	Street	Street	Street



EY-213

EY-210

Size

Rim

PR

Load Index

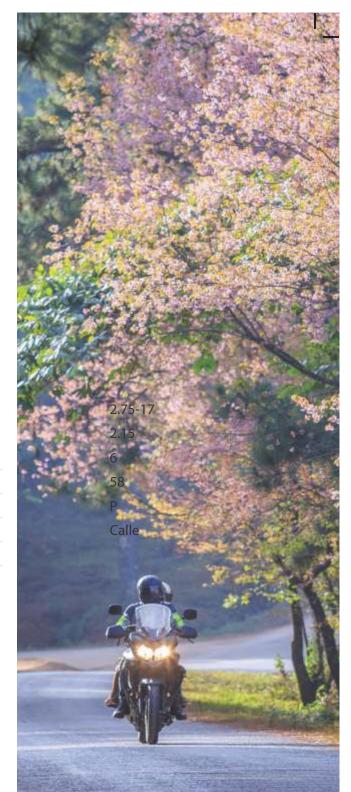
Application

Speed

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



EY-215B	
Size	3.50-16
Rim	2.15
PR	6
Load Index	58
Speed	Р
Application	Street







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	Р	Р	Р	L	Р	Р	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	Р	Р	Р	J	J
Application	Street	Street	Street	Street	Street



EY-229	
Size	2.75-17
Rim	1.85
PR	6
Load Index	47
Speed	Р
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



E1-390					
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	Р	Р	L	J
Application	Street	Street	Street	Street	Street



EY-600A	
Size	2.75-14
Rim	1.85
PR	6
Load Index	41
Speed	Р
Application	Street



EM-430

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



	EY-602	
	Size	2.50-17
	Rim	1.60
	PR	4 & 6
	Load Index	43
	Speed	Р
	Application	Street

3.00-18

1.85 6 52

Ρ

Street



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	Р	Р	Р	Р	Р
Application	Street	Street	Street	Street	Street

AHA	54,000
	EY-603
	Size
	Rim
	PR
	Load Index
	Speed
	Application



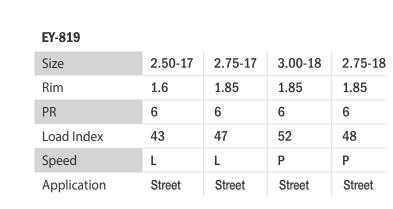




4.6	***	

EY-722	
Size	4.60-18
Rim	3.00B
PR	6
Load Index	63
Speed	Р
Application	Street

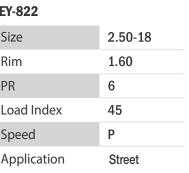
EY-810	
Size	2.75-17
Rim	1.85
PR	6
Load Index	47
Speed	Р
Application	Street





EY-807		
Size	2.75-14	3.00-14
Rim	1.85	1.85
PR	6	6
Load Index	41	45
Speed	Р	Р
Application	Street	Street

	EY
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AE	
	EY-828
	Size
	Rim
19	PR
	Load In
	Speed
Sec. 1	Applica

EY-828	
Size	90/90-18
Rim	2.15
PR	6
Load Index	57
Speed	Р
Application	Street

	EY-831
	Size
	Rim
	PR
10	Load Inc
	Speed
	Applicat

		S.S.S.
	130/60-13	
	3.50	N/S
	6	OY I
dex	60	38
	Р	Sec. 1
tion	Street	

EY-844	
Size	3.50-10
Rim	2.50
PR	6
Load Index	56
Speed	J
Application	Street

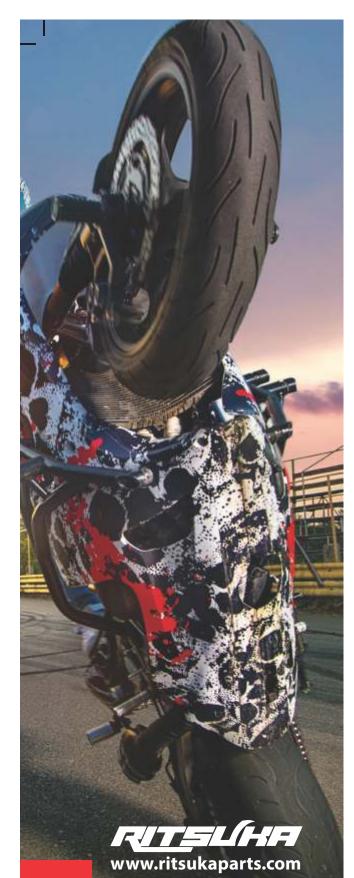
	EY-846			
	Size	110/90-16	3.00-17	3.00-18
	Rim	2.50	1.85	1.85
	PR	6	6	6
la de la compañía de	Load Index	65	50	52
	Speed	Р	L	Р
	Application	Street	Street	Street





EY-892		
Size	90/90-18	100/90-18
Rim	2.15	2.50
PR	6	6
Load Index	57	62
Speed	Р	Р
Application	Street	Street





EY-2303	
Size	130/70-12
Rim	3.5
PR	6
Load Index	58
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	Р	Р	Р
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	Р
Application	Street	Street

120/70-12

2.75

6

62

J

Street

EY-2304

Load Index

Application

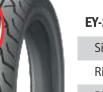
Speed

Size

Rim PR



Λ.	EY-2306	
1	Size	140/60-17
	Rim	3.75
	PR	6
	Load Index	63
	Speed	Р
	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 6 Load Index 57 43 56 47 49 48 Speed P P P P L P Application Street Stree							
PR 6 6 6 6 6 6 6 6 Load Index 57 43 56 47 49 48 Speed P P P P P P P	Size	90/90-18	2.50-17	90/90-17	2.75-17	80/100-14	2.75-18
Load Index574356474948SpeedPPPPLP	Rim	2.15	1.6	2.15	1.85	1.85	1.85
SpeedPPPPLP	PR	6	6	6	6	6	6
	Load Index	57	43	56	47	49	48
Application Street Street Street Street Street	Speed	Р	Р	Р	Р	L	Р
	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	Р	Р	Р	Р
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	К	Р	Р	Р	Р	Р	L	Р	Р	Р
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	Р	Р	Р	Р	Р
Application	Street	Street	Street	Street	Street



COMERCIAL





B	The second
EY-869A	
Size	5.00-12
Rim	3.50B
PR	8
Load Index	83
Speed	К
Application	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	К	К
Application	Comercial	Comercial



EM-03	
Size	3.00-18
Rim	1.85
PR	6
Load Index	48
Speed	Р
Application	Mototaxi

EM-04	
Size	3.00-18
Rim	1.85
PR	6
Load Index	52
Speed	Р
Application	Mototaxi

ΜΟΤΟΤΑΧΙ





EM-05	
Size	3.00-18
Rim	1.85
PR	6
Load Index	52
Speed	Р
Application	Mototaxi



EM-010		
Size	3.00-17	3.00-18
Rim	1.85	1.85
PR	6	6
Load Index	50	52
Speed	р	Р
Application	Mototaxi	Mototaxi

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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	Р	Р	Р	Р	L	L	Р	L
Application	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road	Off Road

110/90-16 2.5 6 ex 65 P

Off Road

È.			
5	EM-09		
	Size	110/100-18	100/100-17
F	Rim	2.5	2.5
5	PR	6	6
	l oad Index	70	64
5	Speed	Р	Р
.		Off Road	Off Road
F	Application		



EM-08	
Size	130/90-16
Rim	3
PR	6
Load Index	73

Application Off Road

Ρ



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	Р	Р	Р	Р	Р	Р	Р	Р
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	Р	Р	Р	Р
Application	Off Road	Off Road	Off Road	Off Road



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	Р	L	Р	Р	Р	Р	Р	Р
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	Р	Μ	Р	Р
Application	Off Road	Off Road	Off Road	Off Road







EY-156	
Size	120/80-18
Rim	2.75
PR	6
Load Index	68
Speed	Р
Application	Off Road

101	

EY-434	
Size	4.10-18
Rim	2.15
PR	6
Load Index	59
Speed	Р
Application	Off Road

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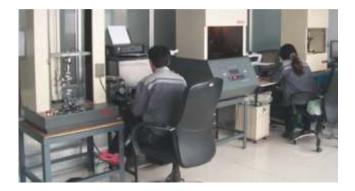
EY-801A	
Size	3.00-18
Rim	1.85
PR	6
Load Index	52
Speed	L
Application	Off Road



ł	EY-2	297	7	

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	Р	Р	Р	Р
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 benchmarked 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, includ-ing 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.

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



other. It is not allowed to fit, for example, a street tyre with an offroad tyre.

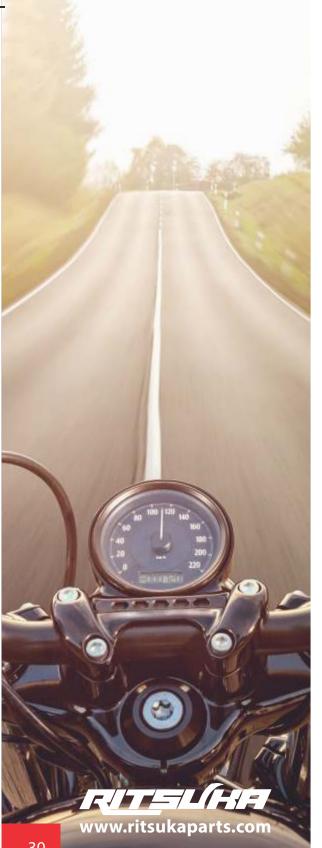
complement each

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.

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, Precis matching of front and rear tyres is necessaryto 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 factorcan affect the handling of a motorcycle, including the weight and height of the rider, and the addition of luggage of friring. 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 tires bear a letter "speed rating" designation indicating the tire's design speed capability. This speed rating system is intended to allow you to compare the speed capabilities of tires.

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 speedrated 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 tires 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 typetyres 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



31



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

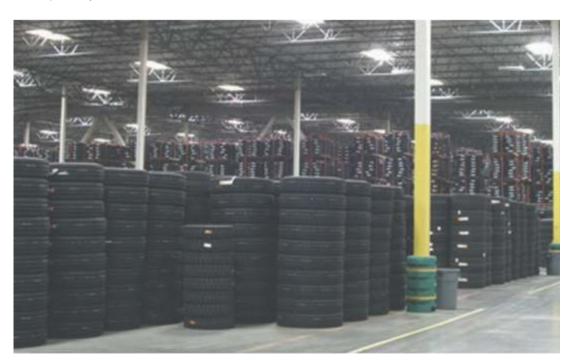




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Storage of tyres

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 lm, 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

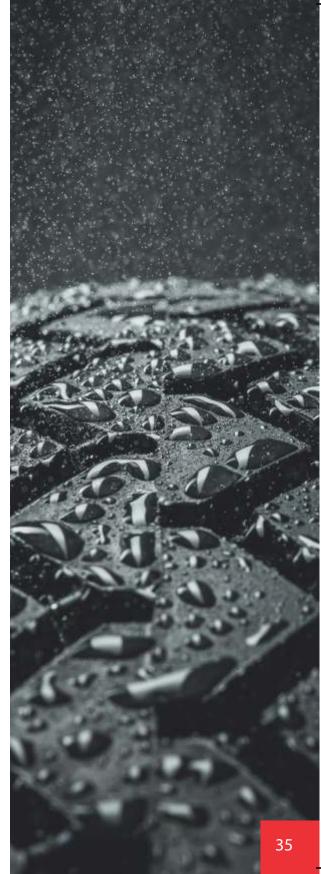
maximum height of 50 cm, on racking shelves with a closed base, accurately avoiding that the valve can damage the surface of the tube when squashed under the pressure of their own weight. Ensure that the tubes do not overlap the edge of the plane on which they are stored to avoid accidental laceration.

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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