發佈：2016-07-26, 週二 11:47
點擊數：5917

????????

??????????????2014???????????
29?5,092??[1]39?2,735????3,138?????????????13.4%?[2]
??????????????15?????????????
?????????
??????????????10
2??????????????4,748??????102?GDP?3.3??[3]???????????44.1%?[4]???????????



機車撞擊測試：模擬市區平均時速 50km/h，側撞、遭追撞，都將對騎士頭頸部造成嚴重傷害。（圖片:Polish Police, DEKRA）

??????????????????????????
??????????????????????7
??

2014**????????**	????????????????		
??	**?????**	**????**	**??????**
???	32,928	1,593	483
???	163,446	3,990	244
???	890,703	19,922	223
???	6,405,778	102,484	159
??	13,735,994	161,416	74

??????

??????????????????(powered two wheelers,
PTW)
??
????????????????

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發佈：2016-07-26, 週二 11:47
點擊數：5917

(1)**??????**

??????????????????????????????
??????????????15%?[5]??????????????????2016?????????????????????(advanced braking system)?????????????(antilock braking systems, ABS)??????????(combined braking systems, CBS)?????????????



搭載 ABS 之機車，緊急情況可縮減煞車距離，且可保有控制能力，閃避障礙物。
(圖片來源：Central European University)

??????????ABS??????????????????????????????IIHS???????ABS
????????????31%??????22%???????20%?[6]??????2006?2009
????????????ABS????????29%?????34%????????2003?2012
????????????ABS????????29%?????42%?[7]

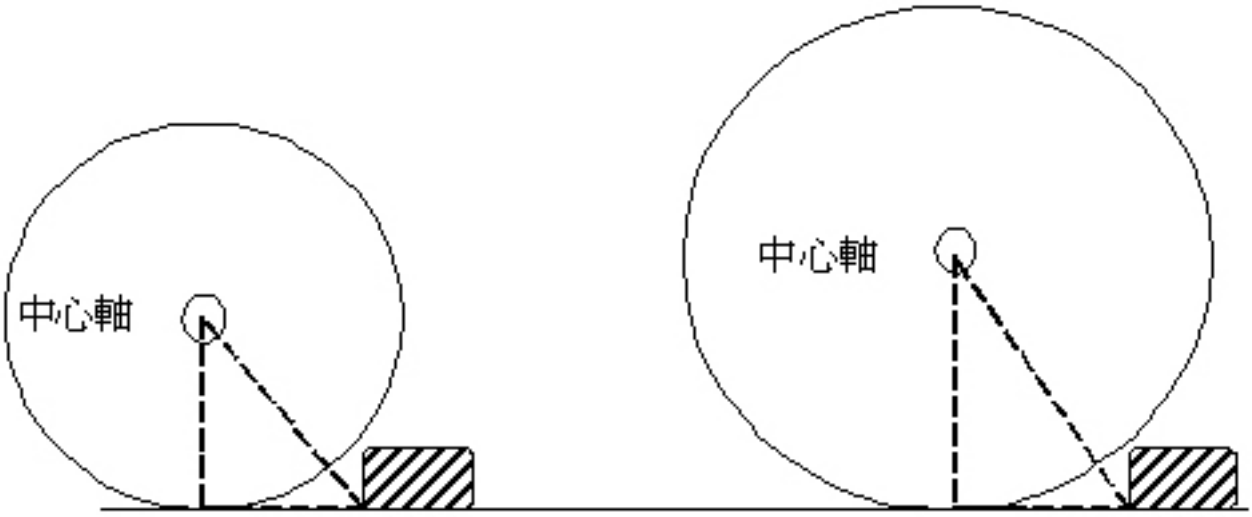
??????????????????126CC?????2019????????????ABS????125CC?????2019
????????????ABS????????CBS
??
??????????????????????????????

(2)**?????????**

??????????
??????????????????
????????????????????????????????????60??????????????????[8]
??

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點擊數：5917



不同輪徑穩定性示意簡圖

碰觸同樣障礙物時，大輪徑B之力距大於A力距，有助車輛穩定與操控。（作者自繪）

??(potholes)??????????????????????[9]
??

??????????????[10]
??

????????/????(steering damper/ stabilizer)????????????????????????(hyperpro)
??????????????????side-effect
??
?????

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點擊數：5917



典型的機車龍頭穩定系統
(圖片摭元：Motorcycledirectory.co.uk)

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??????????????????????????????????????
????[11]
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發佈：2016-07-26, 週二 11:47
點擊數：5917



騎士超車不當，跨越雙黃線標線時輪胎打滑轉倒，遭後車碾壓重傷。

（圖片：台灣蘋果日報）

??????????????????????????????????????
??[12]??

(1)
???????????
??????????????????????
????????????????????????????????400??????????????[13]
??????????????????????????45BPN (British Pendulum Number, BPN)???[14]???????????????????65BPN?[15]???????????45- 70BPN?[16]

??????????(Slip Resistance Group, UK)???????????45BPN???????????????????65BPN????????????[17]
??????????????????????

????????????????????????????????????[18]
??????????
??????????????????????
????????????????????????????????????65BPN????????????????????????????????

????????????

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發佈：2016-07-26, 週二 11:47
點擊數：5917

????????????**????????????**?	
????	**????**
0-24	?
25-35	?
36-64	?
65+	??

(2)
??
??????????????249cc
??
?
??
????
????????
??????????????????
????????????????????????????????
????????????[19]
??
??????????????????

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??
??????????????????????????ABS
??

(1)??????????????????ABS
??
??????????

(2)??????????????????????????????ABS
??ABS/ CBS
??
???????

(3)????????????????????????????????????ABS
????????????????????????????????
??????????????ABS??????????????????????????????3?4
??????????????????8.6%?[20]???2020????4??????????[21]
2010?????4??????????2030??????9???[22]

??
????????????????????????????????????

_____
[1]??????????????066??????????????104?4?15????1?

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[2]????????103??????????????????2016?1?12????54
??????????????????????24??

[3]??????”??????4,750?”??????????????????2014?8?21???

[4]??????????????066??????????????104?4?15????1?

[5] European Commission, “Making roads safer for motorcycles and mopeds” (Sep. 12, 2015) http://ec.europa.eu/transport/road_safety/users/motorcyclists-mopdeds/index_en.htm (last visited June 03, 2016)

[6]Eric R. Teoh, Effects of Antilock Braking Systems on Motorcycle Fatal Crash Rates: An Update (IIHS, May 2013), pp. 1- 4.

[7]??2015?8?28??

[8] Directorate-General Transport and Energy, Powered Two Wheelers(Brussels: European Commission, 2009), p. 31..

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[9]Harriet Wise, “Scooter Wheel and Tire Size” 27 February 2016. <http://reviewall.biz/2016/02/scooter-wheel-and-tire-size/ > (last visited, 28 May 2016)

[10]????????10???????????12??????????12, 13????????????????????

[11]“????????????250?????”?????2016?6?4??

[12] Directorate-General Transport and Energy, Powered Two Wheelers(Brussels: European Commission, 2009), p. 38..

[13]陳慰慈。”標線抗滑係數低騎士頻「犁田」”自由時報。<http://news.ltn.com.tw/news/local/paper/773145 >(2014年4月23日)。

[14]????***??????????????????????***????????104?12????32?

[15]???????????
??????????????????<
http://www.appledaily.com.tw/realtimenews/article/new/20150510/607704/ >(2015?5?10?)?

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[16]陳慰慈。”標線抗滑係數低 騎士頻「犁田」”前揭書。

[17]????????**????????????**????????????2008?12????38?

[18]????**??????????????????????**??????31?

[19]??

[20]Jensen Beeler, “European Motorcycle Sales Show Signs of Life,” Visordown&ANCMA, April 03, 2014.

[21]“Top 10 fastest-growing European bike markets,” Visordown, 23 March 2016, http://goo.gl/iz75JP (02 June 2016)

[22]The International Council of Clean Transportation, European Vehicle Market Statistics: Pocketbook 2013 (Washington DC: ICCT, 2013), p. 11.

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點擊數：5917

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