

April 11th 2009 Pauli Velhonoja

Rumble strips in Finland - Overview

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Rumble strips In Finland

Overview , end 2008

2-lane roads

centerline	4000 km (milled 3500 km , pressed 500 km)
edge line	1000 km

Motorways and other roads with dual carriageways

600 km (outer edgeline , partly on both sides)

Rumble strips _ Finland



Milled



Pressed

Rumble strips In Finland

Rumble strips are recommended

on all motorways and roads with dual carriageways outside built-up areas

on 2- line roads

centerline , if AADT over 3000 vehicles

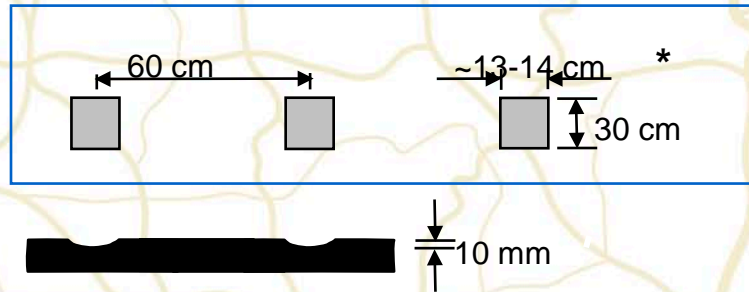
edgeline if AADT over 4000 vehicles

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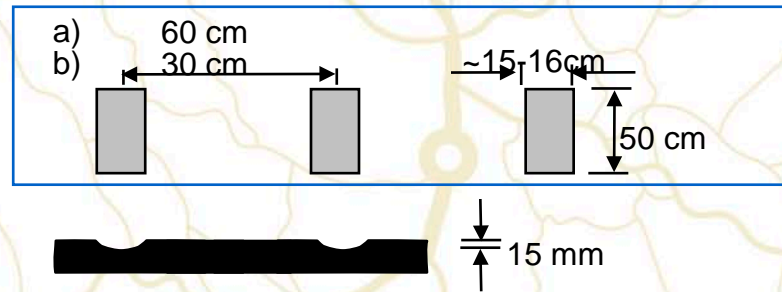
Milled rumble strips

Standard types

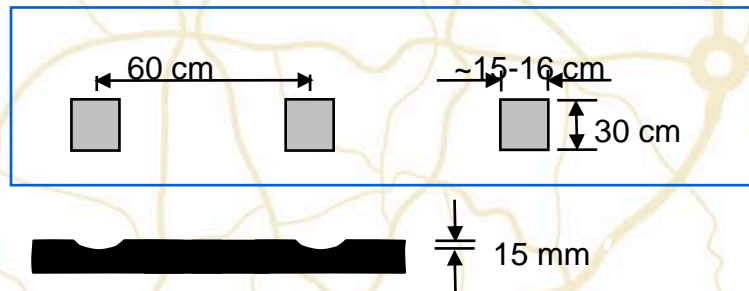
type 1 ,



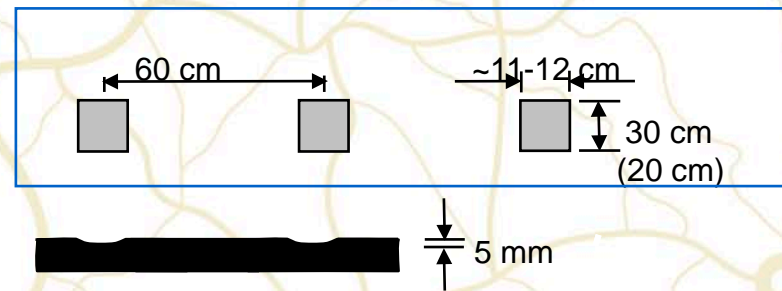
type 2a and 2b



type 3



type 4



Depth ± 2 mm

type 1 : centerline, edgeline

type 2 : motorways

type 3 : edgeline, no bicycles

type 4 : edgeline, bicycles

Rumble strips in Finland

Questionnaire 2007 (500 car drivers)

90 % found no negative sides with rumble strips

80% said traffic safety will be better

**8 % said they had avoided an accident because of rumble strips
(!!)**

Rumble strips In Finland

Effect on traffic safety?

alert sleepy drivers

reduce drifting outside driving lane

reduce speeds

reduce overtakings

Noise problem, complaints in the beginning

No rumble strips on old pavement!

Rumble strips _ test sections 2007

Two test sections with rumble strips on center line and edge lines

Two –lane roads , 10 km long, speed limit 100 km/ h, AADT 4000 -6000

Before –after study

**Hypothesis
Assumptions**

effect on speeds

decrease

effect on overtakings

decrease

effect on lateral position on the lane

**more driving in the
middle of the lane**

Rumble strips _ test sections 2007

Before – after study

Mean spot speed

No significant change

Mean travelling speed

No significant change

Number of overtakings per vehicle

No significant change

Number on overtakings per km road

No significant change

Lateral position on the lane

Tangent section

Less driving on the road markings

Bend to the left

Moving to the right (less driving on the center line marking)

Bend to the right

Moving to the left (less driving on the edge line)

Rumble strips - Wide center line_ Experiment 2009

