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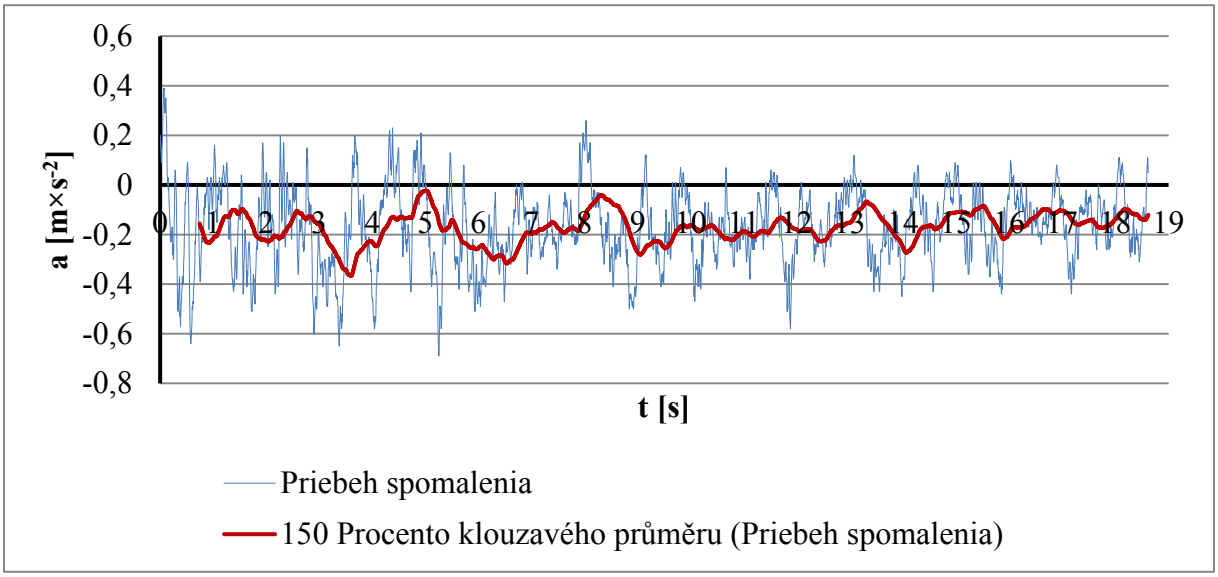
1 POZDĹŽNE SPOMALENIE VOZIDLA MERCEDES-BENZ ACTROS 2546

1.1 PRIEBEH SPOMALENIA NALOŽENÉHO NÁKLADNÉHO VOZIDLA

1.1.1 Brzdenie motorom

Redukčný 3 prevodový stupeň (1. meranie)



Obr. č. 1 – Spomalenie brzdením motora pri zaradenom 3 redukčnom prevodovom stupni

$a_{pr} = 0{,}17\ \mathrm{m/s^2}$; $a_{max} = 0{,}69\ \mathrm{m/s^2}$

$v_0 := 25\ \ kph$

$t := 18.62\ \ s$

$v := v_0 - a \cdot t = 14\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 99.8\ \ m$

kde a_{pr} je priemerné spomalenie [m/s^2],

a_{max} je maximálne spomalenie [m/s^2],

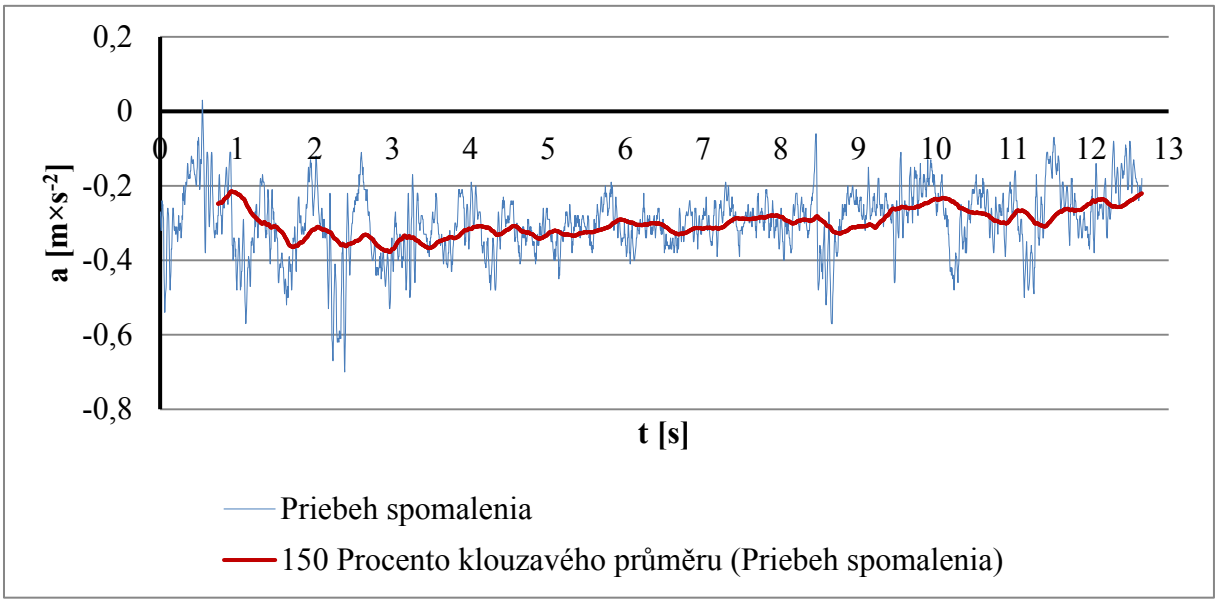
v_0 je počiatočná rýchlosť [km/h],

t je čas [s],

v je konečná rýchlosť [km/h],

kde s je dráha [m].

Redukčný 3 prevodový stupeň (2. meranie)



Obr. č. 2 – Spomalenie brzdením motora pri zaradenom 3 redukčnom prevodovom stupni

$a_{pr} = 0{,}297\ \mathrm{m/s^2}$; $a_{max} = 0{,}70\ \mathrm{m/s^2}$

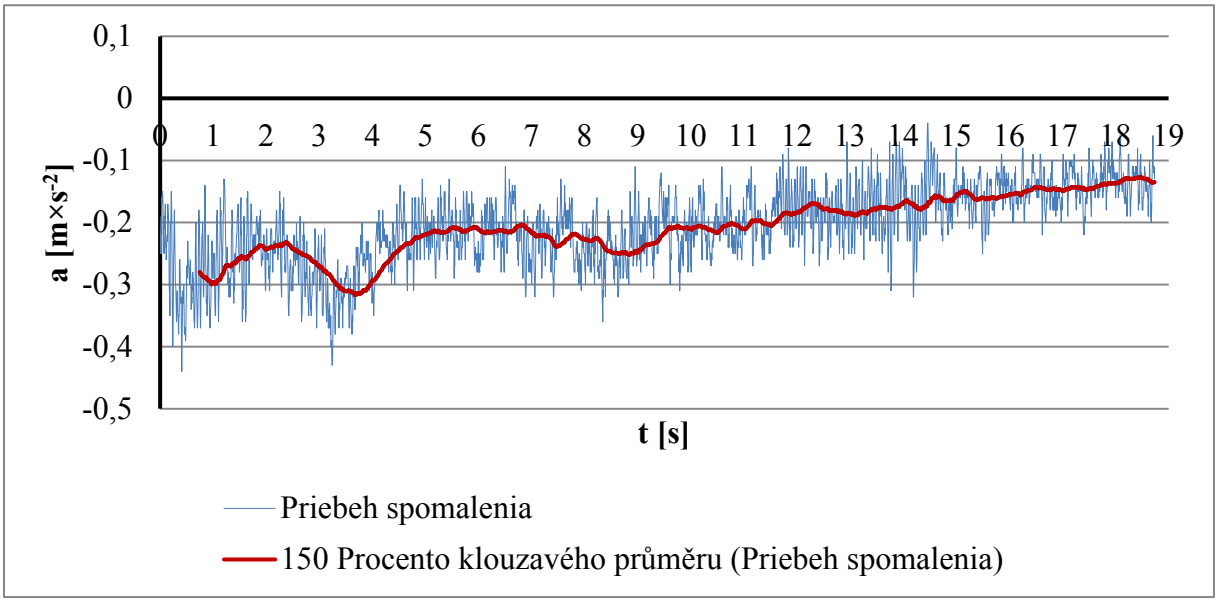
$v_0 := 25\ \ kph$

$t := 12.655\ \ s$

$v := v_0 - a \cdot t = 11\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 64.1\ \ m$

Normálny 3 prevodový stupeň (1. meranie)



Obr. č. 3 – Spomalenie brzdením motora pri zaradenom 3 normálnom prevodovom stupni

$a_{pr} = 0{,}206\ \mathrm{m/s^2}$; $a_{max} = 0{,}58\ \mathrm{m/s^2}$

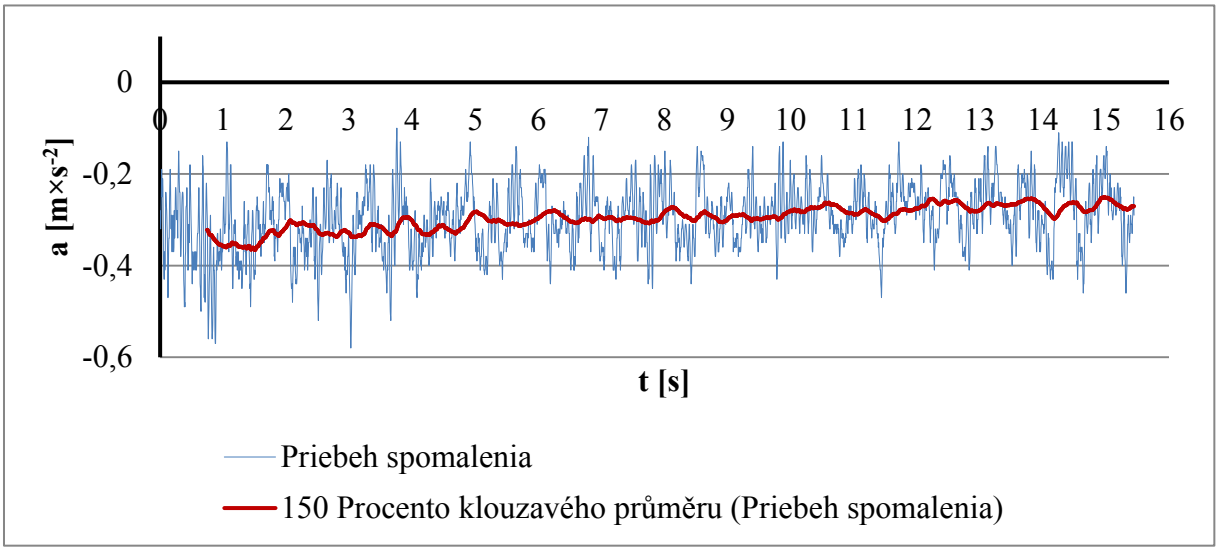
$v_0 := 15$ ***kph***

$t := 18.735$ ***s***

$v := v_0 - a \cdot t = 1$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 41.9$ ***m***

Normálny 3 prevodový stupeň (2. meranie)



Obr. č. 4 – Spomalenie brzdením motora pri zaradenom 3 normálnom prevodovom stupni

$a_{pr} = 0{,}297\ \mathrm{m/s^2}$; $a_{max} = 0{,}44\ \mathrm{m/s^2}$

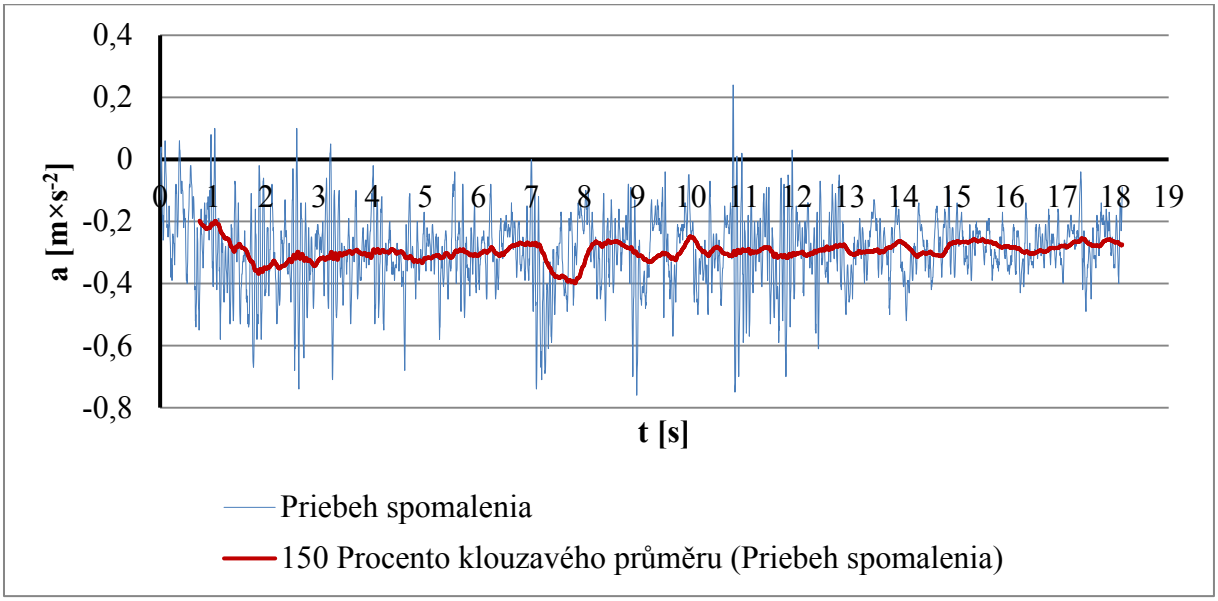
$v_0 := 33\ \textbf{\textit{kph}}$

$t := 15.445\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 16\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 106.2\ \textbf{\textit{m}}$

Normálny 3 prevodový stupeň (3. meranie)



Obr. č. 5 – Spomalenie brzdením motora pri zaradenom 3 normálnom prevodovom stupni

$a_{pr} = 0{,}293\ \mathrm{m/s^2}$; $a_{max} = 0{,}76\ \mathrm{m/s^2}$

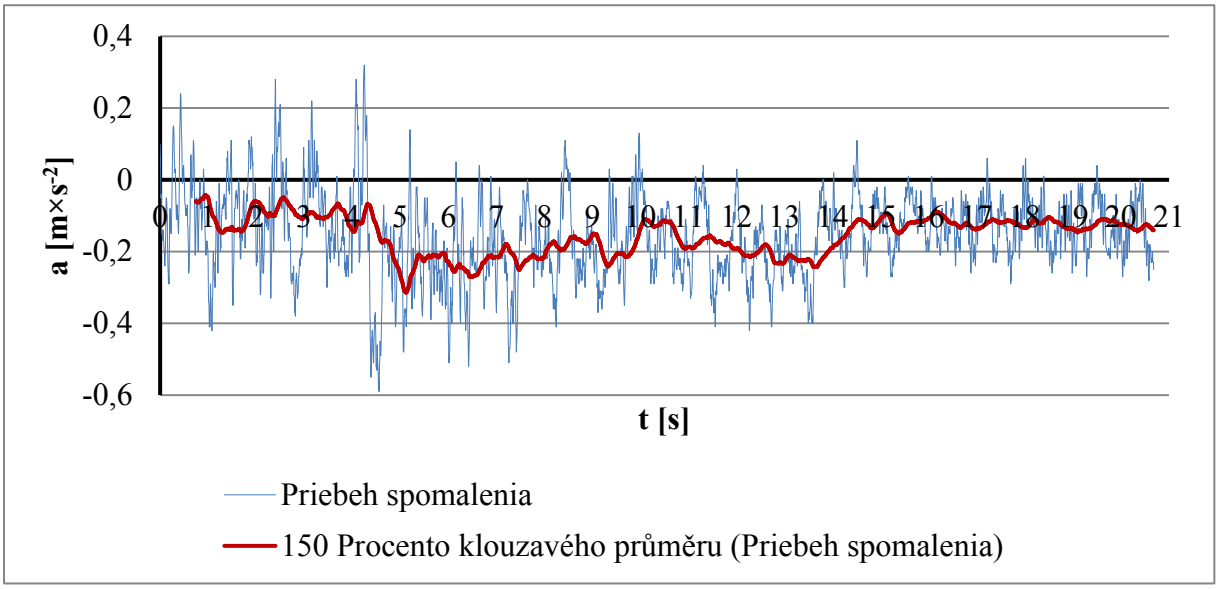
$v_0 := 30\ \textbf{\textit{kph}}$

$t := 18.125\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 11\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 102.9\ \textbf{\textit{m}}$

Redukčný 4 prevodový stupeň (1. meranie)



Obr. č. 6 – Spomalenie brzdením motora pri zaradenom 4 redukčnom prevodovom stupni

$a_{pr} = 0{,}154\ \mathrm{m/s^2}$; $a_{max} = 0{,}59\ \mathrm{m/s^2}$

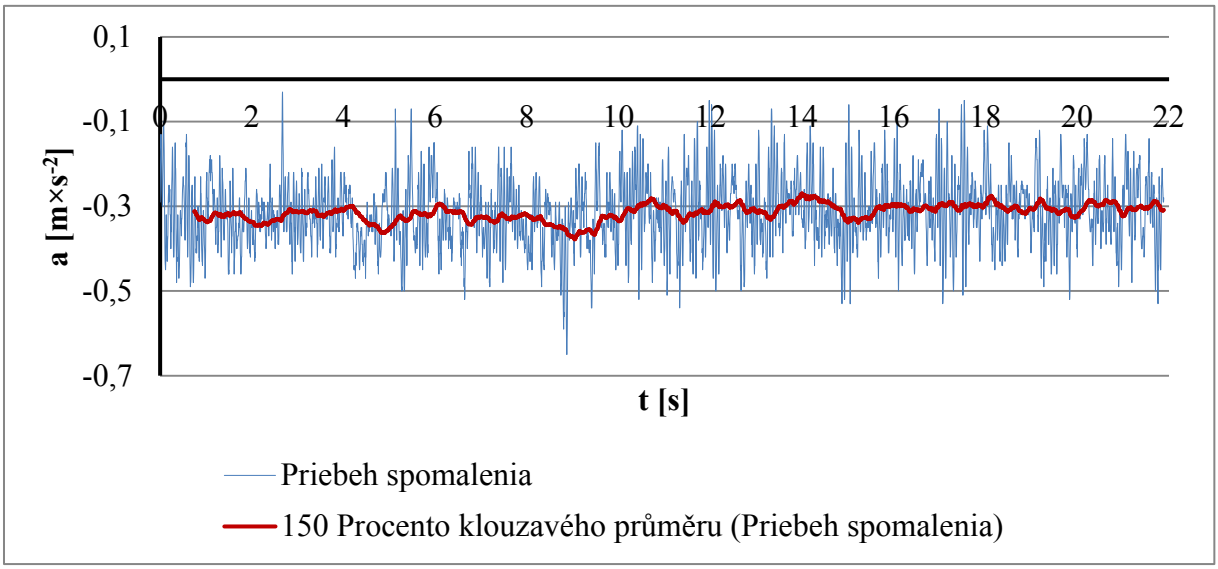
$v_0 := 16$ ***kph***

$t := 20.68$ ***s***

$v := v_0 - a \cdot t = 5$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 59$ ***m***

Redukčný 4 prevodový stupeň (2. meranie)



Obr. č. 7 – Spomalenie brzdením motora pri zaradenom 4 redukčnom prevodovom stupni

$a_{pr} = 0{,}314\ \mathrm{m/s^2};\ a_{max} = 0{,}65\ \mathrm{m/s^2}$

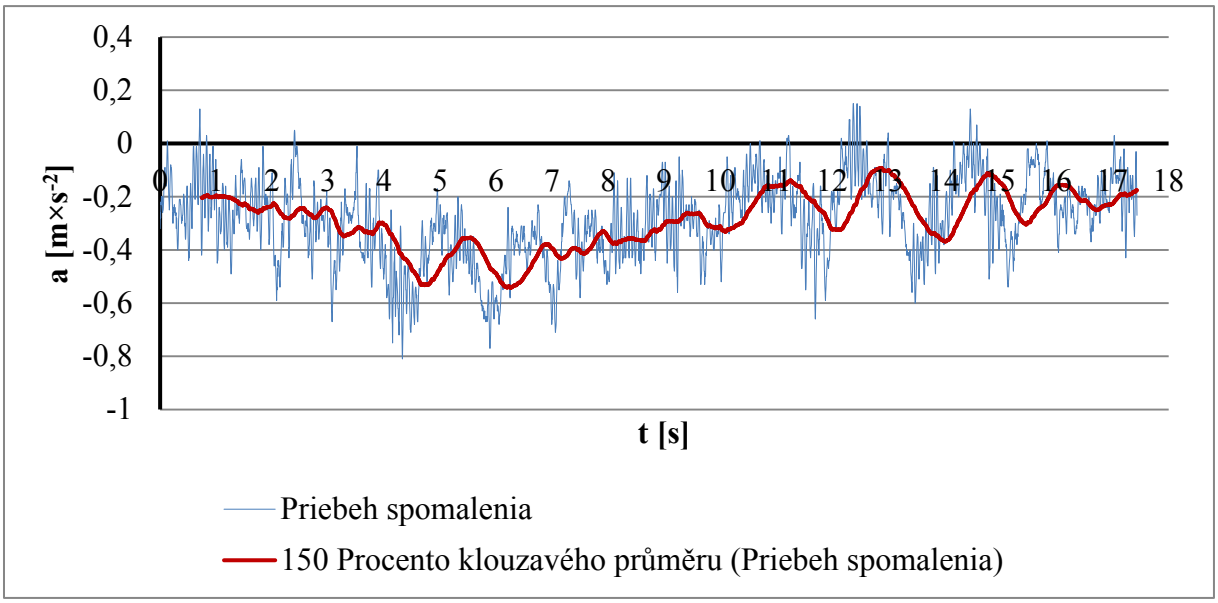
$v_0 := 38\ \textbf{\textit{kph}}$

$t := 21.885\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 13\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 155.8\ \textbf{\textit{m}}$

Normálny 4 prevodový stupeň



Obr. č. 8 – Spomalenie brzdením motora pri zaradenom 4 normálnom prevodovom stupni

$a_{pr} = 0{,}286\ \mathrm{m/s^2};\ a_{max} = 0{,}81\ \mathrm{m/s^2}$

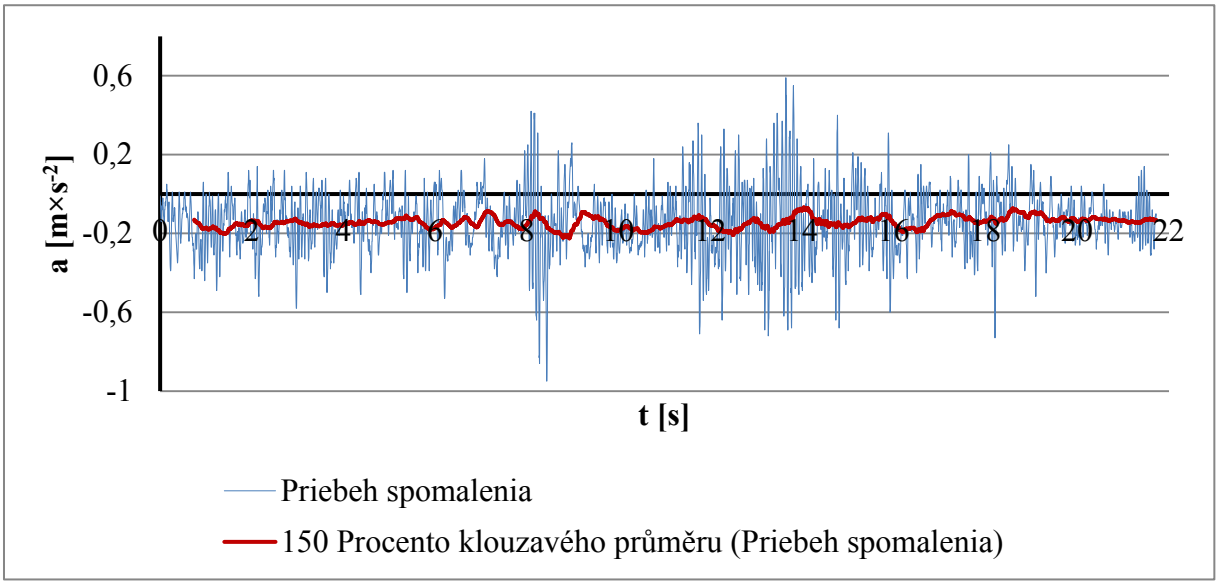
$v_0 := 42\ \textbf{\textit{kph}}$

$t := 17.435\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 24\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 159.9\ \textbf{\textit{m}}$

Redukčný 5 prevodový stupeň



Obr. č. 9 – Spomalenie brzdením motora pri zaradenom 5 redukčnom prevodovom stupni

$a_{pr} = 0{,}144\ \mathrm{m/s^2}$; $a_{max} = 0{,}95\ \mathrm{m/s^2}$

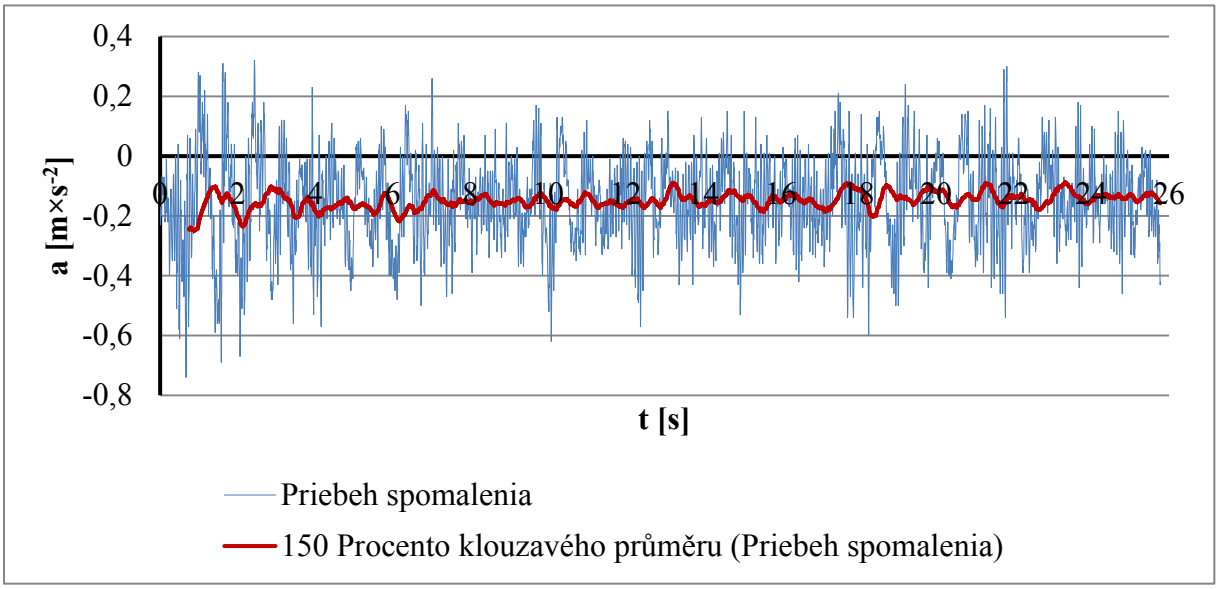
$v_0 := 40$ ***kph***

$t := 21.72$ ***s***

$v := v_0 - a \cdot t = 29$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 207.4$ ***m***

Normálny 5 prevodový stupeň (1. meranie)



Obr. č. 10 – Spomalenie brzdením motora pri zaradenom 5 normálnom prevodovom stupni

$a_{pr} = 0{,}150\ \mathrm{m/s^2}$; $a_{max} = 0{,}74\ \mathrm{m/s^2}$

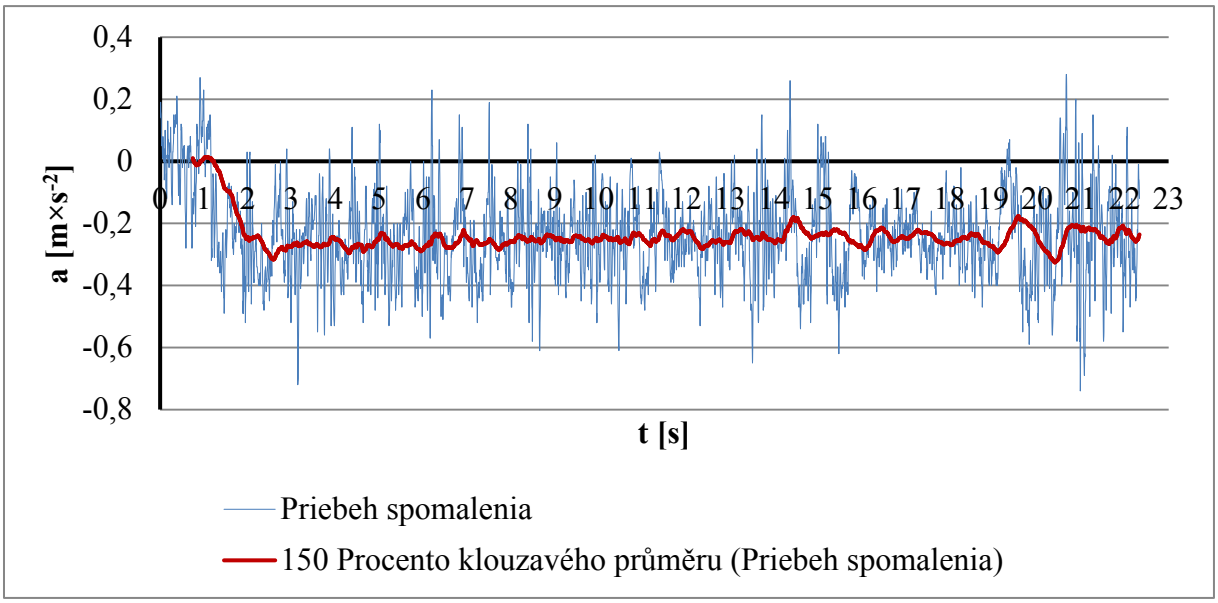
$v_0 := 82$ ***kph***

$t := 25.775$ ***s***

$v := v_0 - a \cdot t = 68$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 537.3$ ***m***

Normálny 5 prevodový stupeň (2. meranie)



Obr. č. 11 – Spomalenie brzdením motora pri zaradenom 5 normálnom prevodovom stupni

$a_{pr} = 0{,}236\ \mathrm{m/s^2}$; $a_{max} = 0{,}74\ \mathrm{m/s^2}$

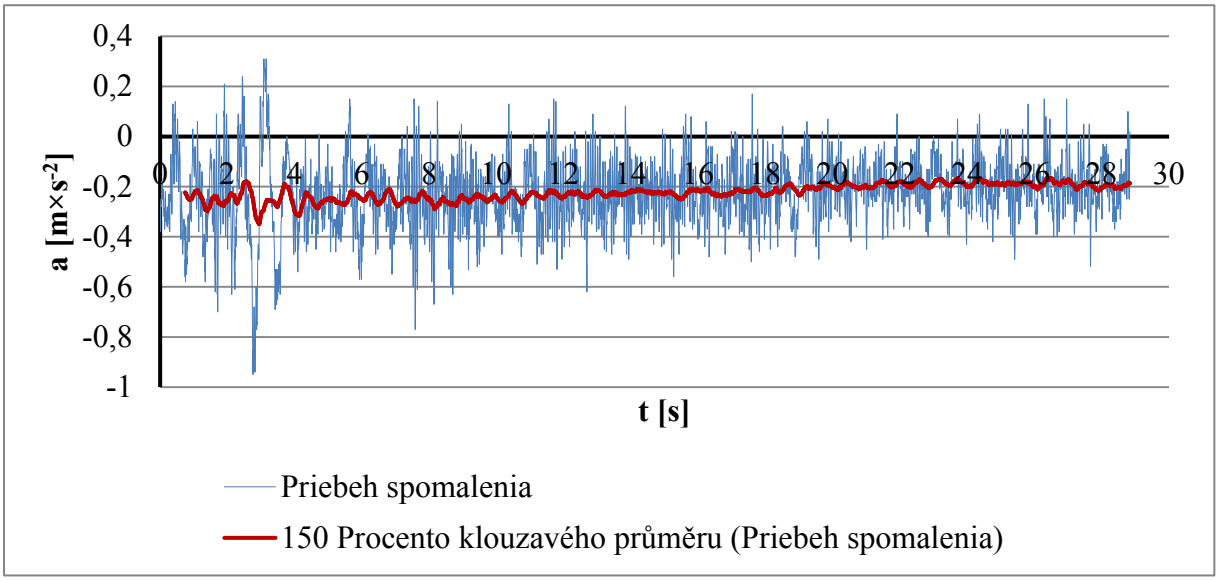
$v_0 := 70$ ***kph***

$t := 22.335$ ***s***

$v := v_0 - a \cdot t = 51$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 375.4$ ***m***

Normálny 5 prevodový stupeň (3. meranie)



Obr. č. 12 – Spomalenie brzdením motora pri zaradenom 5 normálnom prevodovom stupni

$a_{pr} = 0{,}222\ \mathrm{m/s^2}$; $a_{max} = 0{,}95\ \mathrm{m/s^2}$

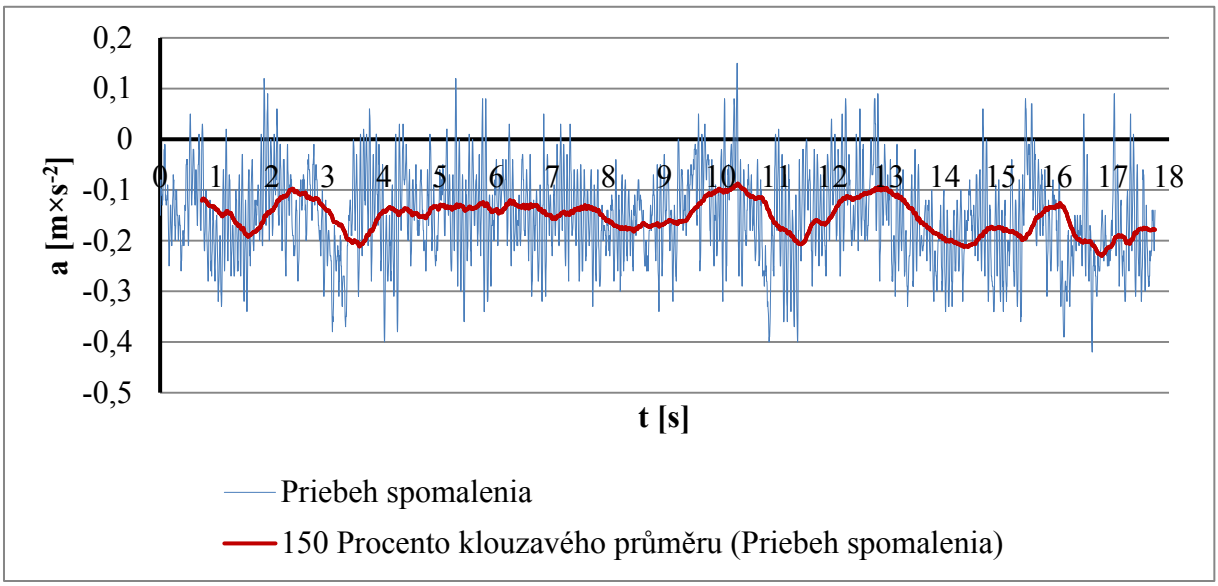
$v_0 := 80$ ***kph***

$t := 28.84$ ***s***

$v := v_0 - a \cdot t = 57$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 548.6$ ***m***

Redukčný 6 prevodový stupeň



Obr. č. 13 – Spomalenie brzdením motora pri zaradenom 6 redukčnom prevodovom stupni

$a_{pr} = 0{,}154\ \mathrm{m/s^2}$; $a_{max} = 0{,}42\ \mathrm{m/s^2}$

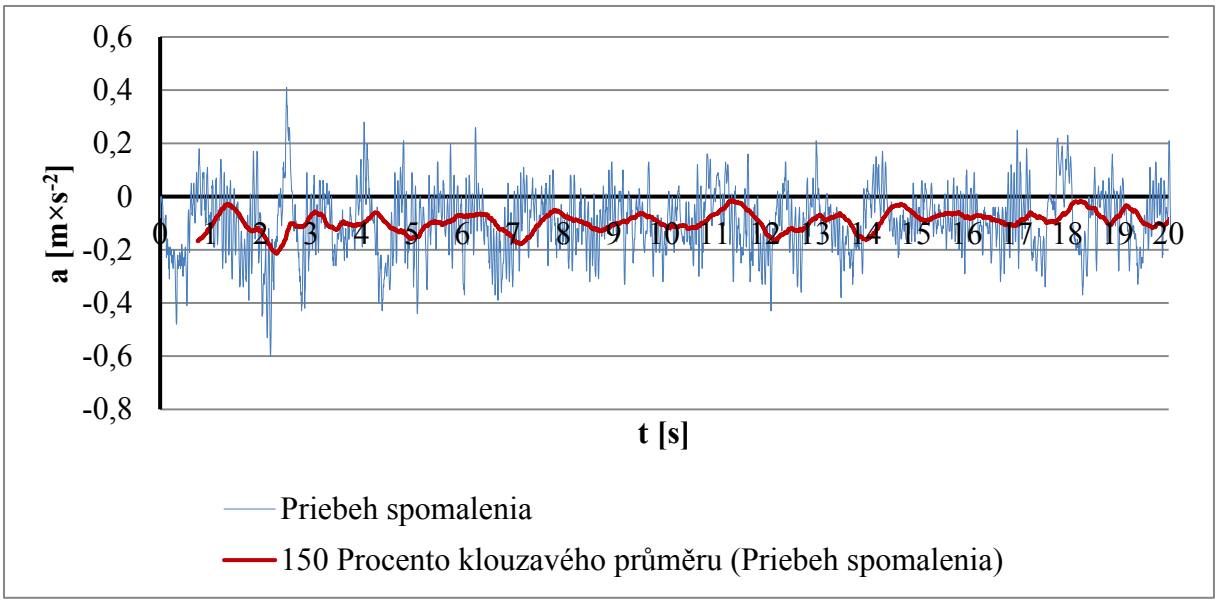
$v_0 := 45$ ***kph***

$t := 17.75$ ***s***

$v := v_0 - a \cdot t = 35$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 197.6$ ***m***

Normálny 6 prevodový stupeň (1. meranie)



Obr. č. 14 – Spomalenie brzdením motora pri zaradenom 6 normálnom prevodovom stupni

$a_{pr} = 0{,}082\ \mathrm{m/s^2}$; $a_{max} = 0{,}60\ \mathrm{m/s^2}$

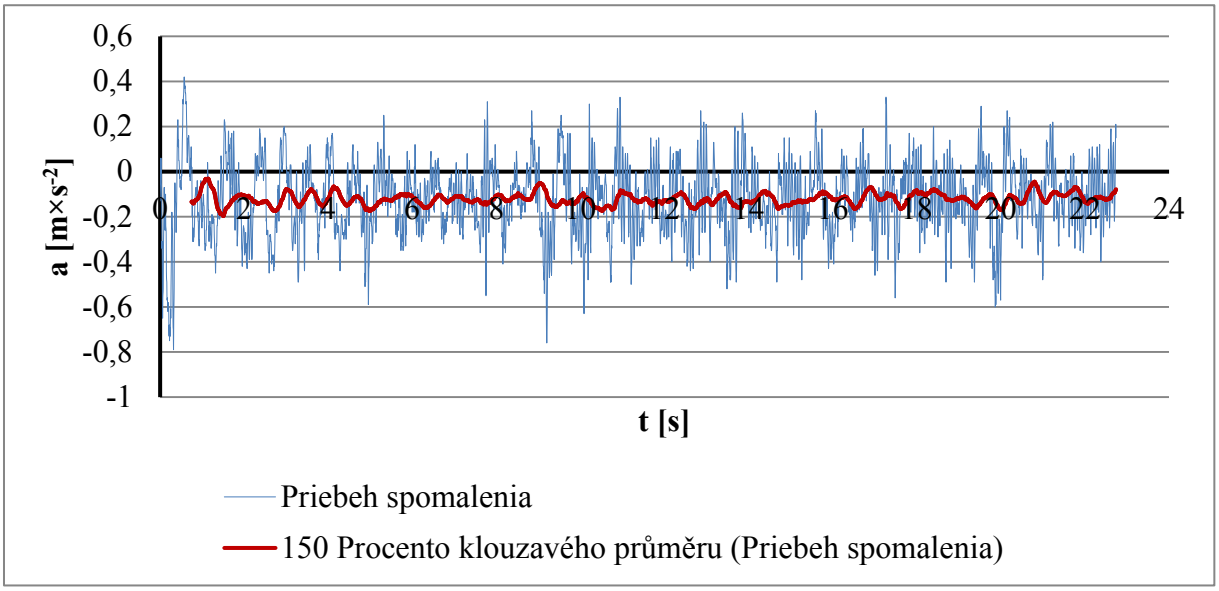
$v_0 := 57$ ***kph***

$t := 39.84$ ***s***

$v := v_0 - a \cdot t = 45$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 565.7$ ***m***

Normálny 6 prevodový stupeň (2. meranie)



Obr. č. 15 – Spomalenie brzdením motora pri zaradenom 6 normálnom prevodovom stupni

$a_{pr} = 0{,}123\ \mathrm{m/s^2}$; $a_{max} = 0{,}79\ \mathrm{m/s^2}$

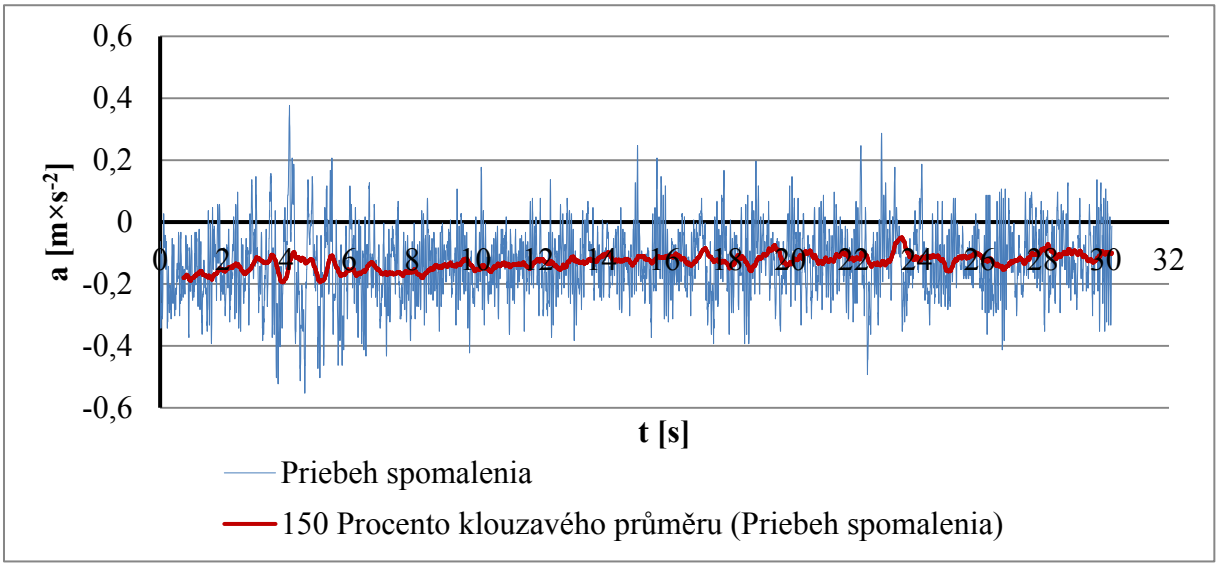
$v_0 := 85$ ***kph***

$t := 22.74$ ***s***

$v := v_0 - a \cdot t = 75$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 505.1$ ***m***

Normálny 6 prevodový stupeň (3. meranie)



Obr. č. 16 – Spomalenie brzdením motora pri zaradenom 6 normálnom prevodovom stupni

$a_{pr} = 0{,}130\ \mathrm{m/s^2}$; $a_{max} = 0{,}55\ \mathrm{m/s^2}$

$v_0 := 73$ ***kph***

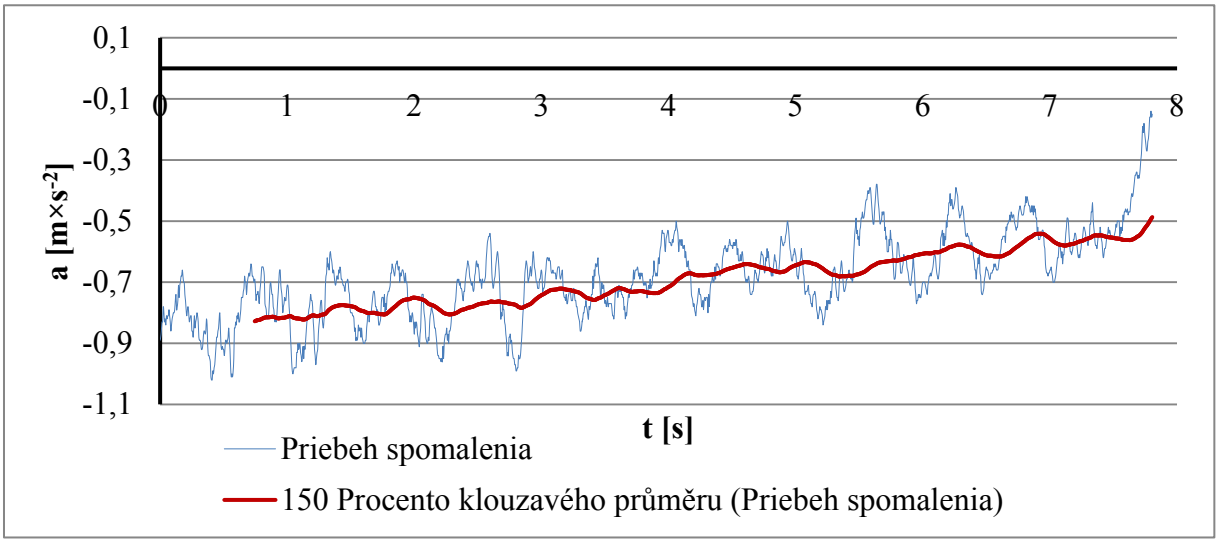
$t := 30.19$ ***s***

$v := v_0 - a \cdot t = 59$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 552.9$ ***m***

1.1.2 1. Stupeň motorovej brzdy

Redukčný 3 prevodový stupeň



Obr. č. 17 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 3 redukčnom prevode

$a_{pr} = 0{,}682\ \mathrm{m/s^2}$; $a_{max} = 1{,}02\ \mathrm{m/s^2}$

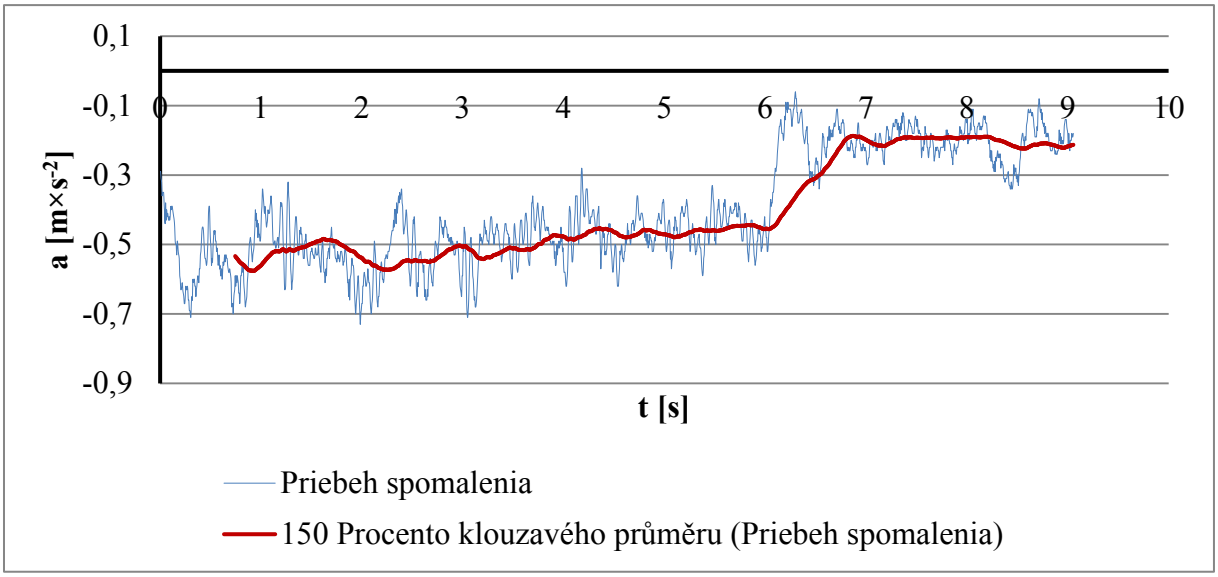
$v_0 := 25\ \textbf{\textit{kph}}$

$t := 7.805\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 6\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 33.4\ \textbf{\textit{m}}$

Normálny 3 prevodový stupeň



Obr. č. 18 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 3 normálnom prevode

$a_{pr} = 0{,}400\ \mathrm{m/s^2}$; $a_{max} = 0{,}73\ \mathrm{m/s^2}$

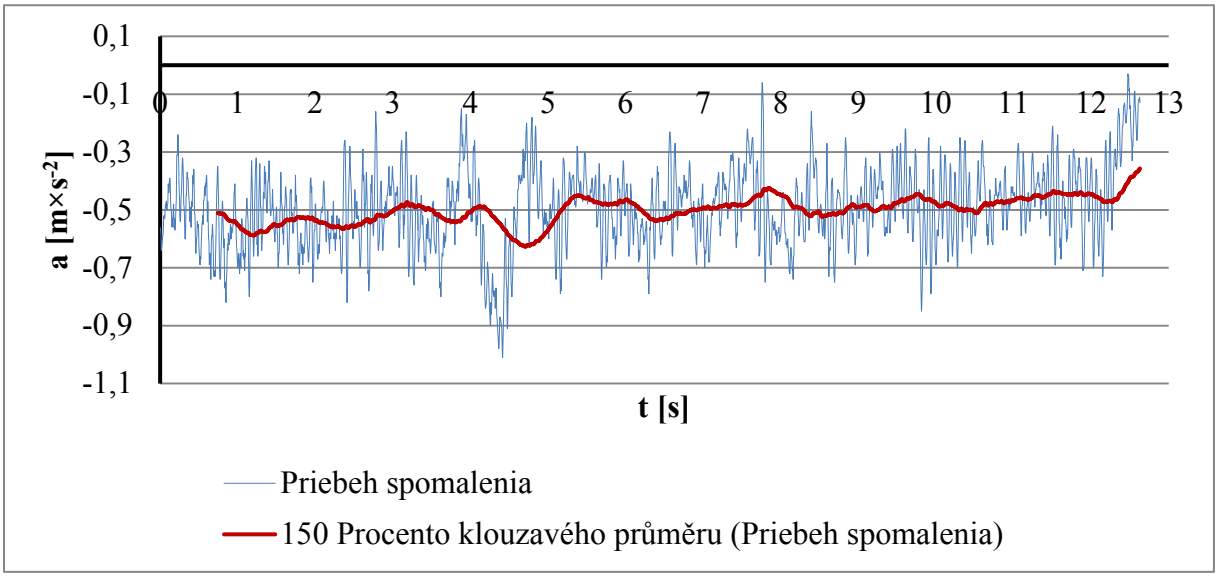
$v_0 := 28\ \textbf{\textit{kph}}$

$t := 9.055\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 15\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 54\ \textbf{\textit{m}}$

Normálny 4 prevodový stupeň



Obr. č. 19 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 4 normálnom prevode

$a_{pr} = 0{,}494\ \mathrm{m/s^2}$; $a_{max} = 1{,}01\ \mathrm{m/s^2}$

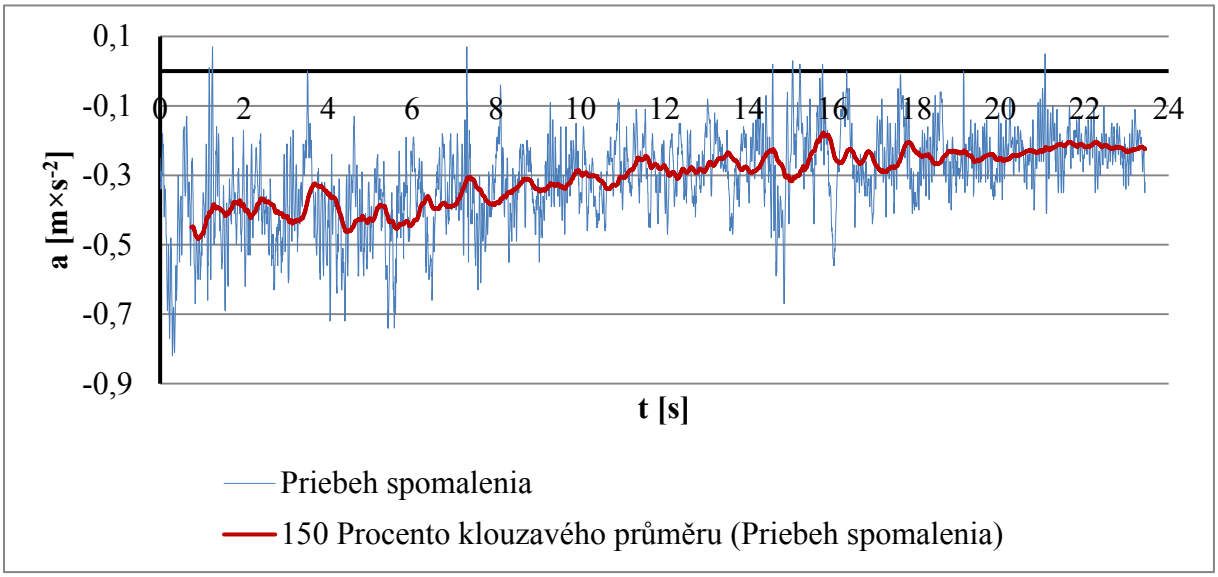
$v_0 := 60$ ***kph***

$t := 12.63$ ***s***

$v := v_0 - a \cdot t = 38$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 171.1$ ***m***

Redukčný 5 prevodový stupeň (1. meranie)



Obr. č. 20 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 5 redukčnom prevode

$a_{pr} = 0{,}308\ \mathrm{m/s^2};\ a_{max} = 0{,}82\ \mathrm{m/s^2}$

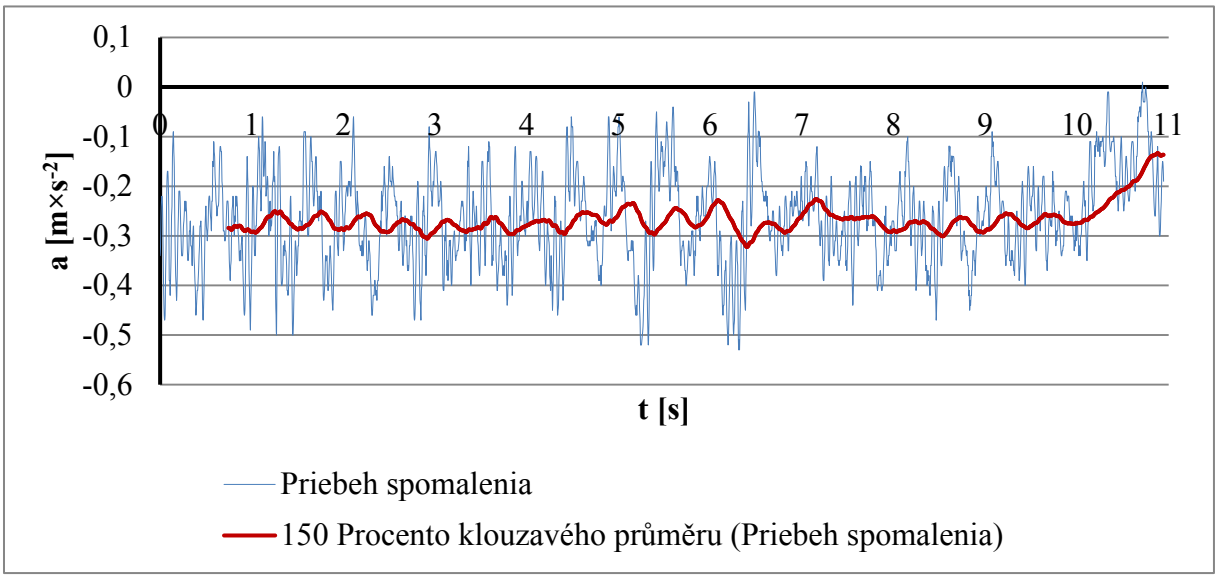
$v_0 := 62\ \textbf{\textit{kph}}$

$t := 23.44\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 36\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 319.1\ \textbf{\textit{m}}$

Redukčný 5 prevodový stupeň (2. meranie)



Obr. č. 21 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 5 redukčnom prevode

$a_{pr} = 0{,}264\ \mathrm{m/s^2};\ a_{max} = 0{,}53\ \mathrm{m/s^2}$

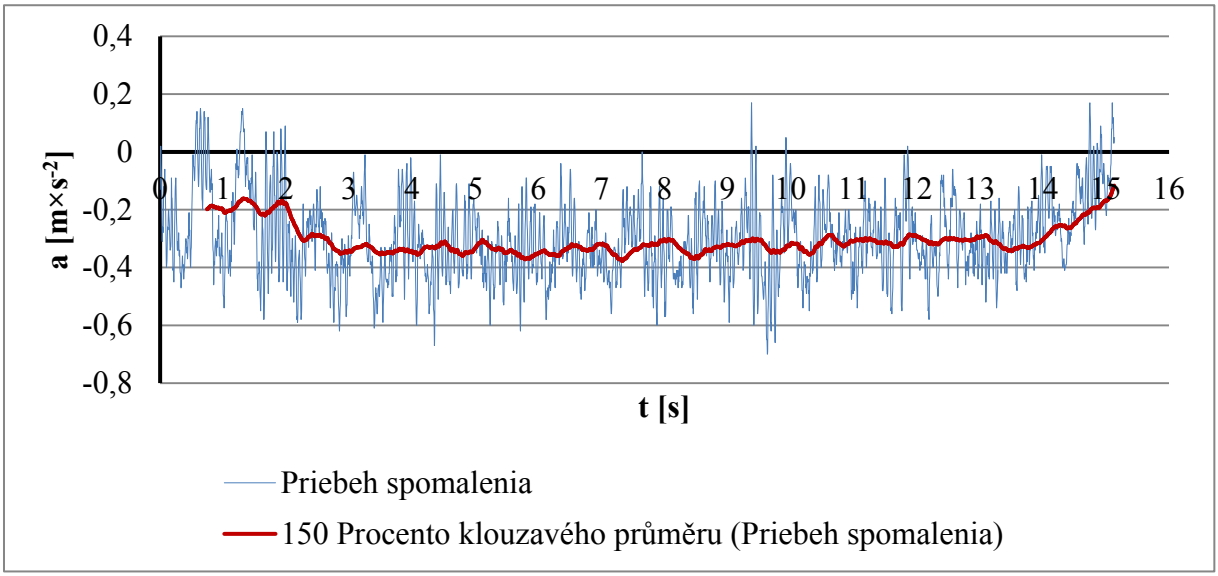
$v_0 := 39\ \textbf{\textit{kph}}$

$t := 10.945\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 29\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 102.8\ \textbf{\textit{m}}$

Normálny 5 prevodový stupeň



Obr. č. 22 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 5 normálnom prevode

$a_{pr} = 0{,}299\ \mathrm{m/s^2}$; $a_{max} = 0{,}70\ \mathrm{m/s^2}$

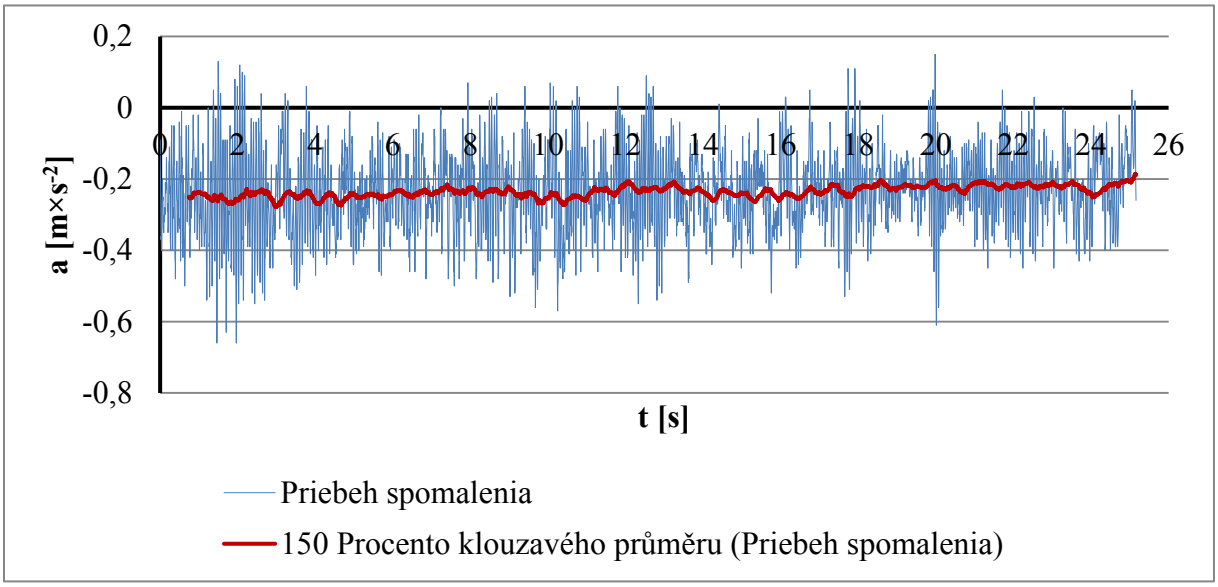
$v_0 := 80$ ***kph***

$t := 15.13$ ***s***

$v := v_0 - a \cdot t = 64$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 302$ ***m***

Redukčný 6 prevodový stupeň (1. meranie)



Obr. č. 23 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 6 redukčnom prevode

$a_{pr} = 0{,}234\ \mathrm{m/s^2}$; $a_{max} = 0{,}66\ \mathrm{m/s^2}$

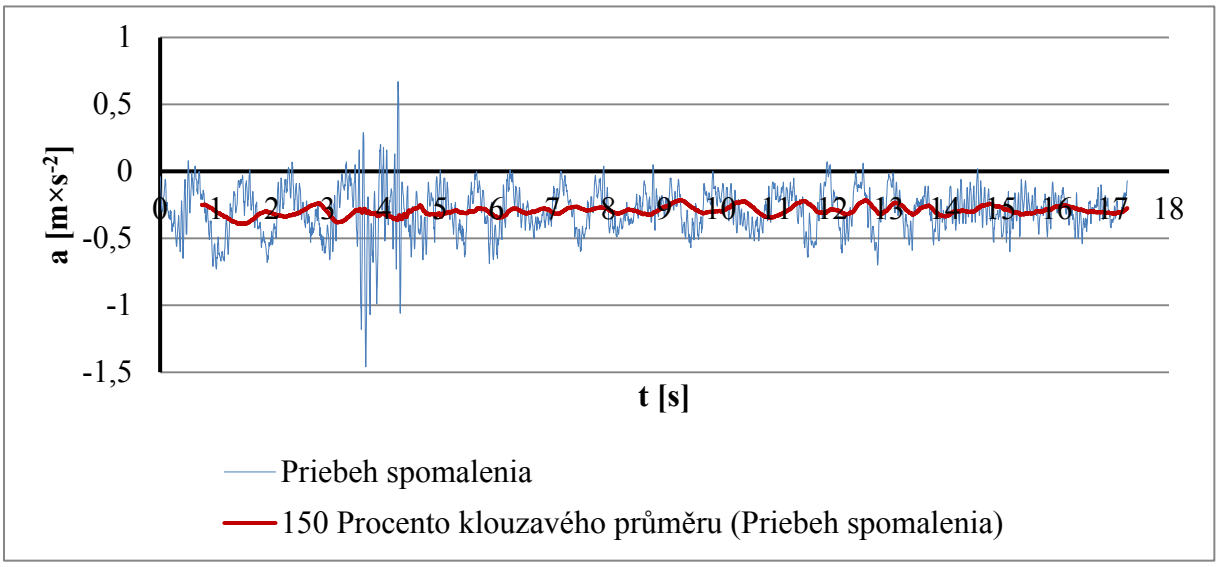
$v_0 := 80\ \textbf{\textit{kph}}$

$t := 25.16\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 59\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 485\ \textbf{\textit{m}}$

Redukčný 6 prevodový stupeň (2. meranie)



Obr. č. 24 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 6 redukčnom prevode

$a_{pr} = 0{,}295\ \mathrm{m/s^2}$; $a_{max} = 1{,}46\ \mathrm{m/s^2}$

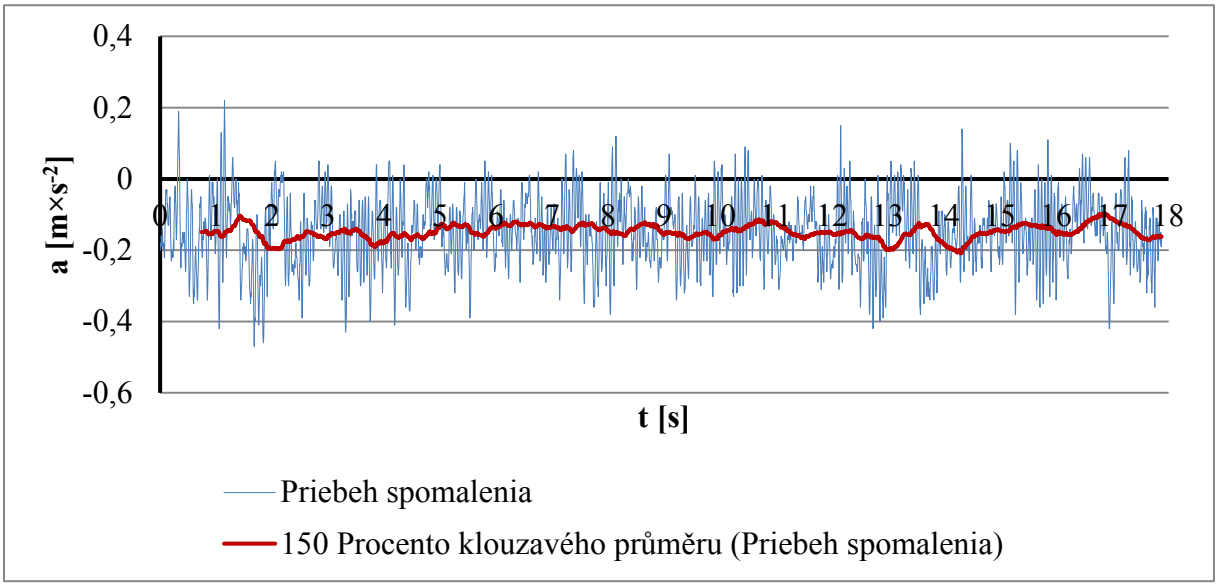
$v_0 := 80\ \textbf{\textit{kph}}$

$t := 17.255\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 62\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 339.5\ \textbf{\textit{m}}$

Redukčný 6 prevodový stupeň (3. meranie)



Obr. č. 25 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 6 redukčnom prevode

$a_{pr} = 0{,}149\ \mathrm{m/s^2}$; $a_{max} = 0{,}47\ \mathrm{m/s^2}$

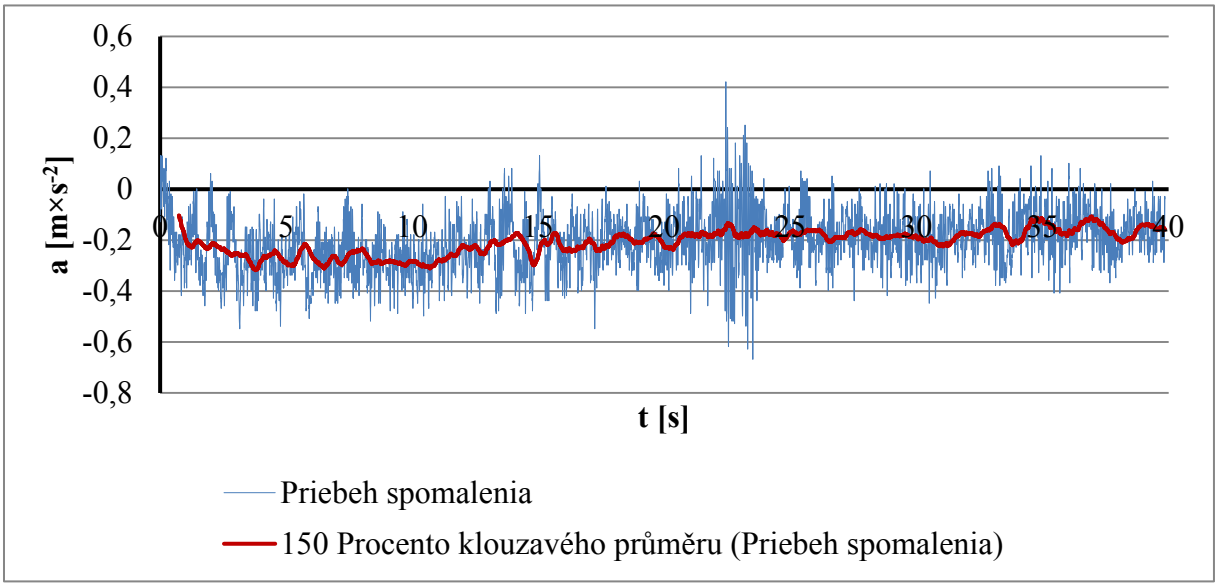
$v_0 := 50\ \textbf{\textit{kph}}$

$t := 17.875\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 40\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 224.5\ \textbf{\textit{m}}$

Normálny 6 prevodový stupeň (1. meranie)



Obr. č. 26 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 6 normálnom prevode

$a_{pr} = 0{,}206\ \mathrm{m/s^2}$; $a_{max} = 0{,}67\ \mathrm{m/s^2}$

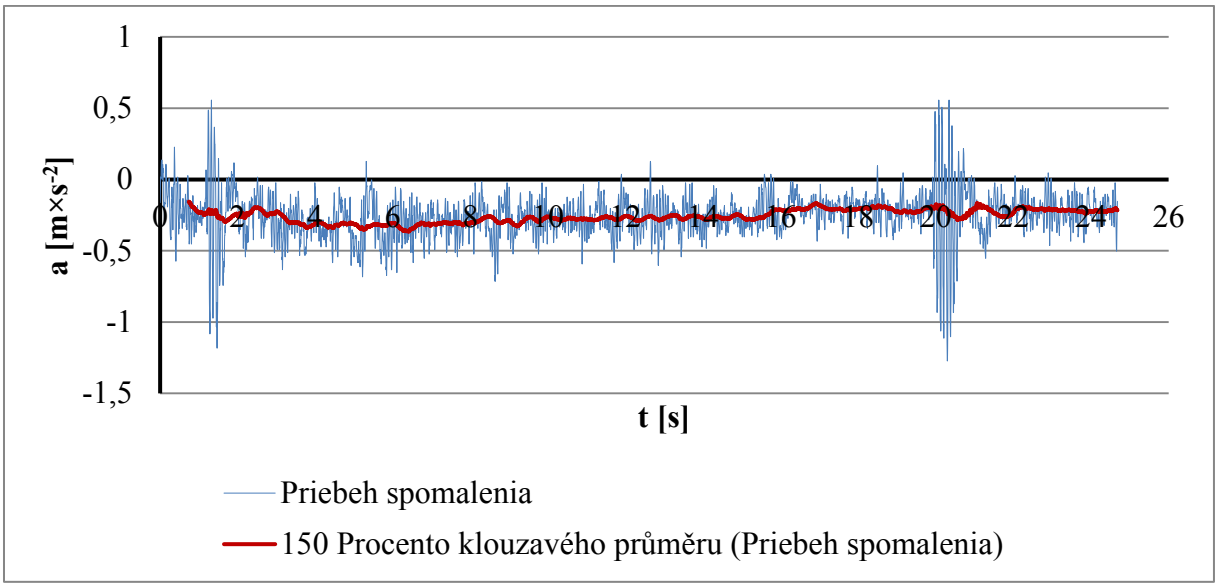
$v_0 := 75$ ***kph***

$t := 39.85$ ***s***

$v := v_0 - a \cdot t = 45$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 666.6$ ***m***

Normálny 6 prevodový stupeň (2. meranie)



Obr. č. 27 – Spomalenie 1. stupňom motorovej brzdi pri zaradenom 6 normálnom prevode

$a_{pr} = 0{,}254\ \mathrm{m/s^2}$; $a_{max} = 1{,}27\ \mathrm{m/s^2}$

$v_0 := 80$ ***kph***

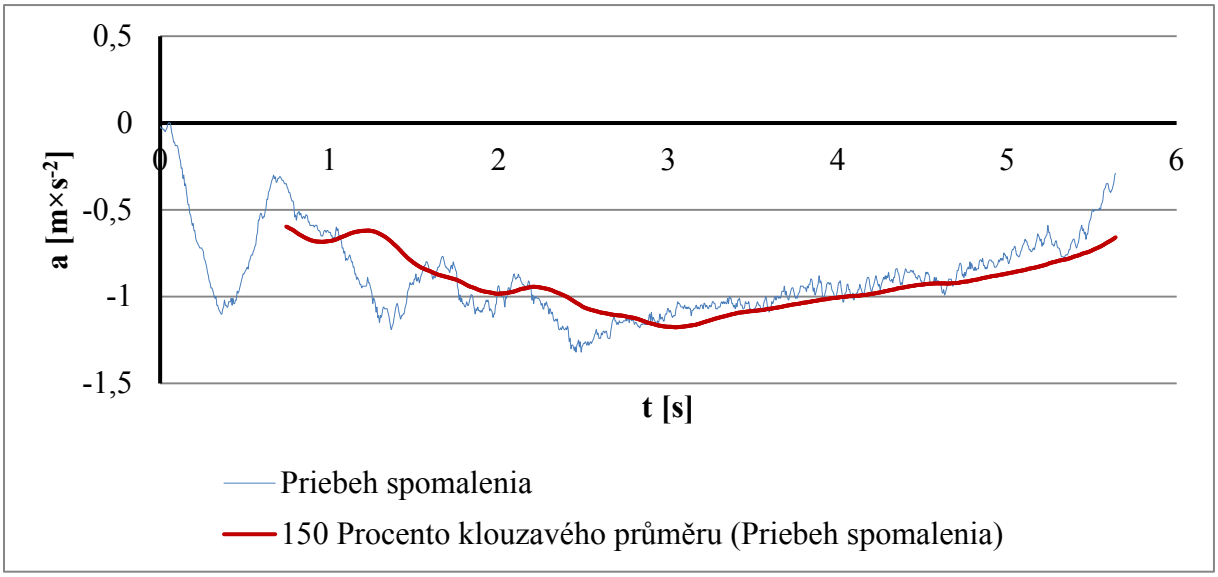
$t := 24.68$ ***s***

$v := v_0 - a \cdot t = 57$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 471.1$ ***m***

1.1.3 2. Stupeň motorovej brzdy

Redukčný 3 prevodový stupeň



Obr. č. 28 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 3 redukčnom prevode

$a_{pr} = 0{,}879\ \mathrm{m/s^2}$; $a_{max} = 1{,}32\ \mathrm{m/s^2}$

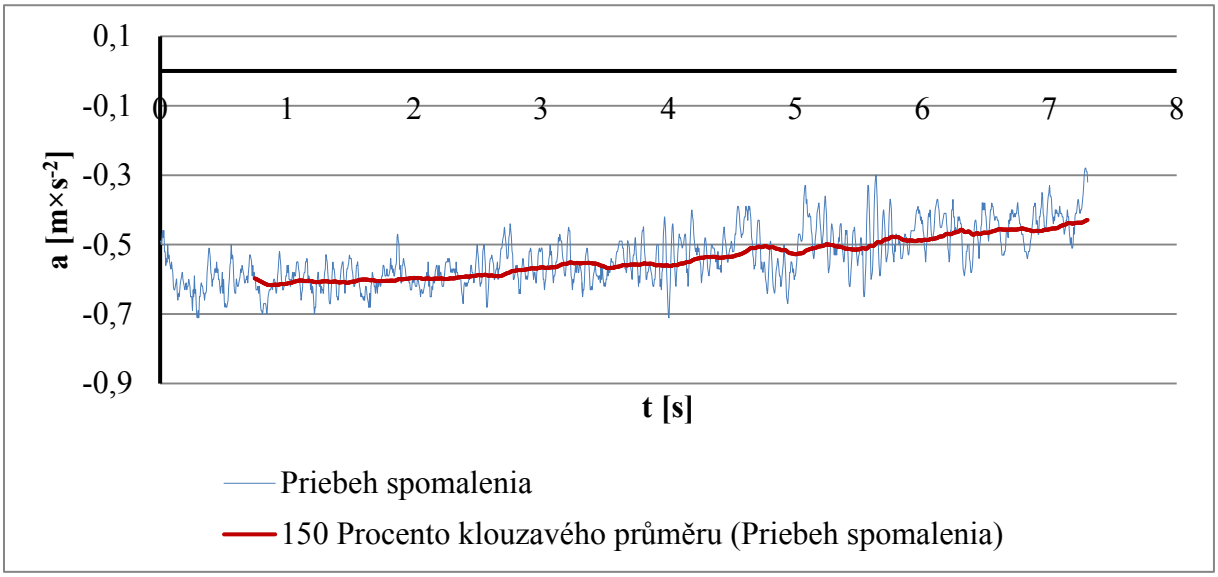
$v_0 := 25\ \ kph$

$t := 5.64\ \ s$

$v := v_0 - a \cdot t = 7\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 25.2\ \ m$

Normálny 3 prevodový stupeň



Obr. č. 29 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 3 normálnom prevode

$a_{pr} = 0{,}536\ \mathrm{m/s^2}$; $a_{max} = 0{,}71\ \mathrm{m/s^2}$

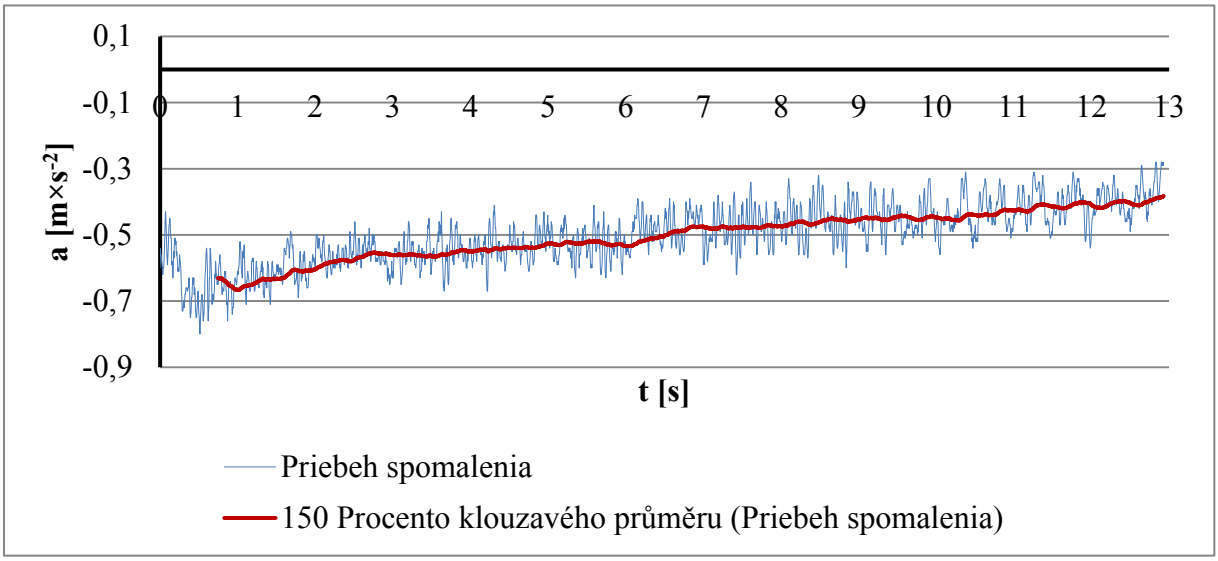
$v_0 := 28$ ***kph***

$t := 7.3$ ***s***

$v := v_0 - a \cdot t = 14$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 42.5$ ***m***

Redukčný 4 prevodový stupeň



Obr. č. 30 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 4 redukčnom prevode

$a_{pr} = 0{,}501\ \mathrm{m/s^2}$; $a_{max} = 0{,}80\ \mathrm{m/s^2}$

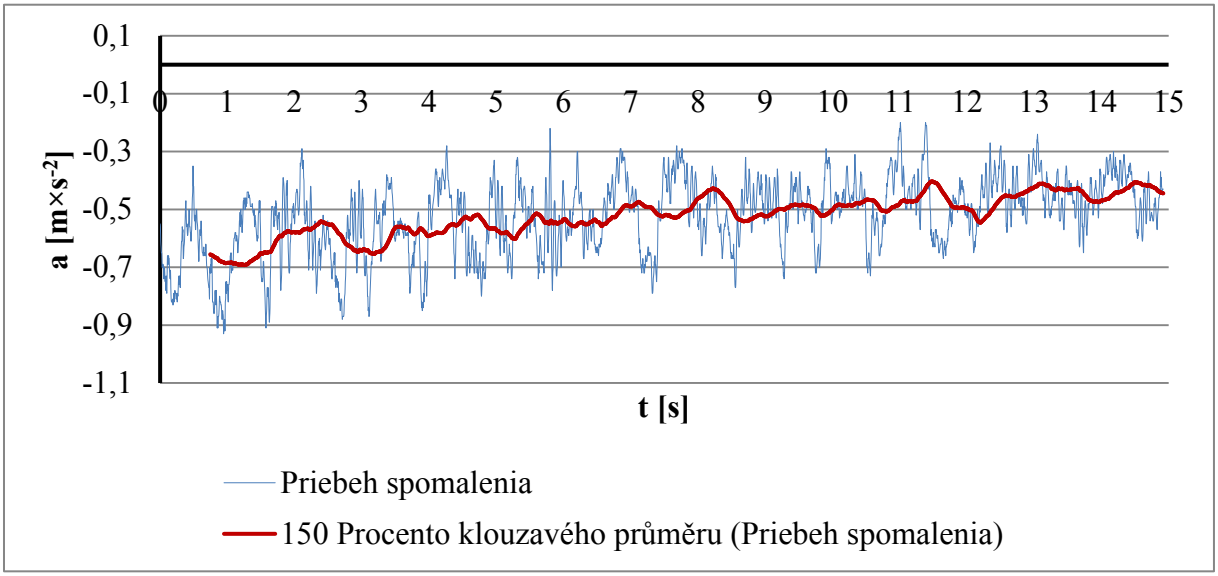
$v_0 := 35\ \textbf{\textit{kph}}$

$t := 12.93\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 12\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 83.8\ \textbf{\textit{m}}$

Normálny 4 prevodový stupeň



Obr. č. 31 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 4 normálnom prevode

$a_{pr} = 0{,}524\ \mathrm{m/s^2}$; $a_{max} = 0{,}93\ \mathrm{m/s^2}$

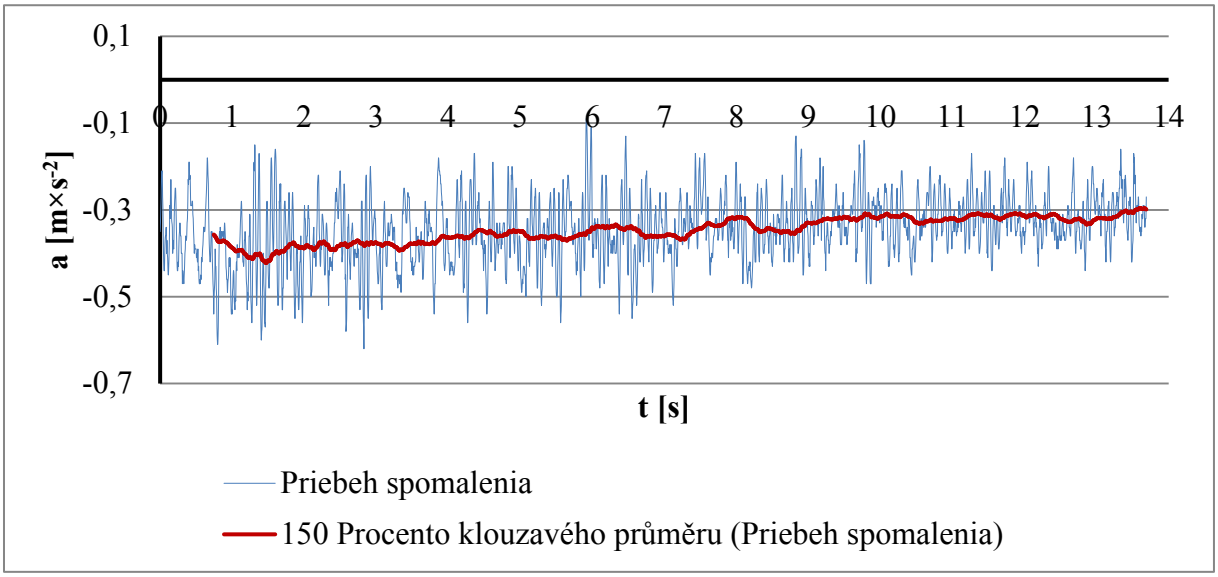
$v_0 := 60\ \textbf{\textit{kph}}$

$t := 14.92\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 32\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 190.3\ \textbf{\textit{m}}$

Redukčný 5 prevodový stupeň



Obr. č. 32 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 5 redukčnom prevode

$a_{pr} = 0{,}346\ \mathrm{m/s^2}$; $a_{max} = 0{,}62\ \mathrm{m/s^2}$

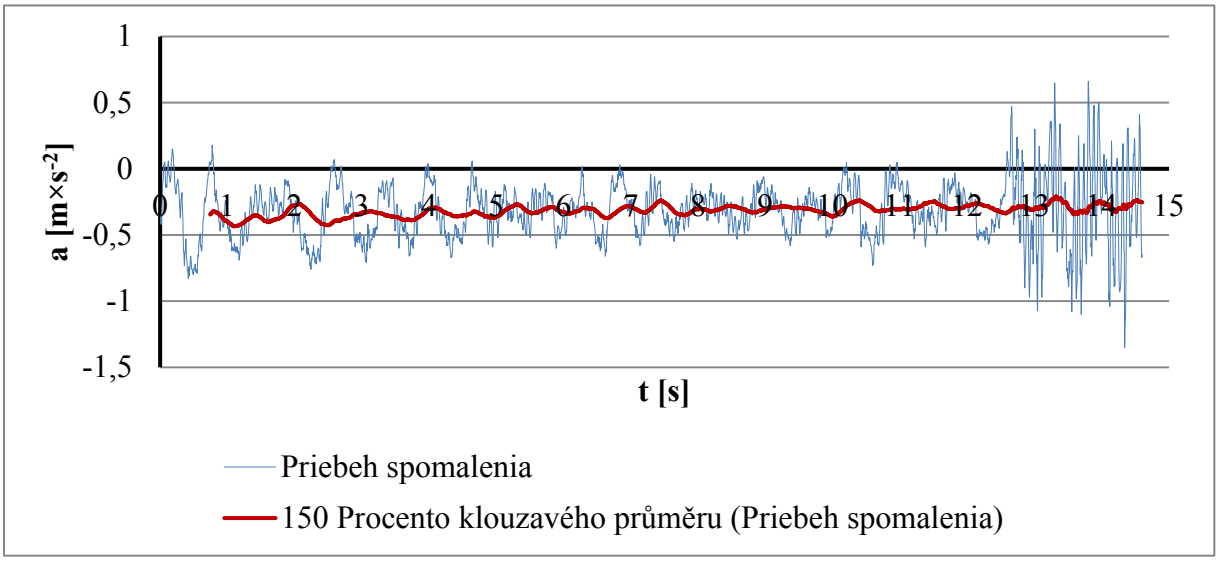
$v_0 := 45\ \ \boldsymbol{kph}$

$t := 13.69\ \ \boldsymbol{s}$

$v := v_0 - a \cdot t = 28\ \ \boldsymbol{kph}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 138.7\ \ \boldsymbol{m}$

Normálny 5 prevodový stupeň



Obr. č. 33 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 5 normálnom prevode

$a_{pr} = 0{,}315\ \mathrm{m/s^2}$; $a_{max} = 1{,}35\ \mathrm{m/s^2}$

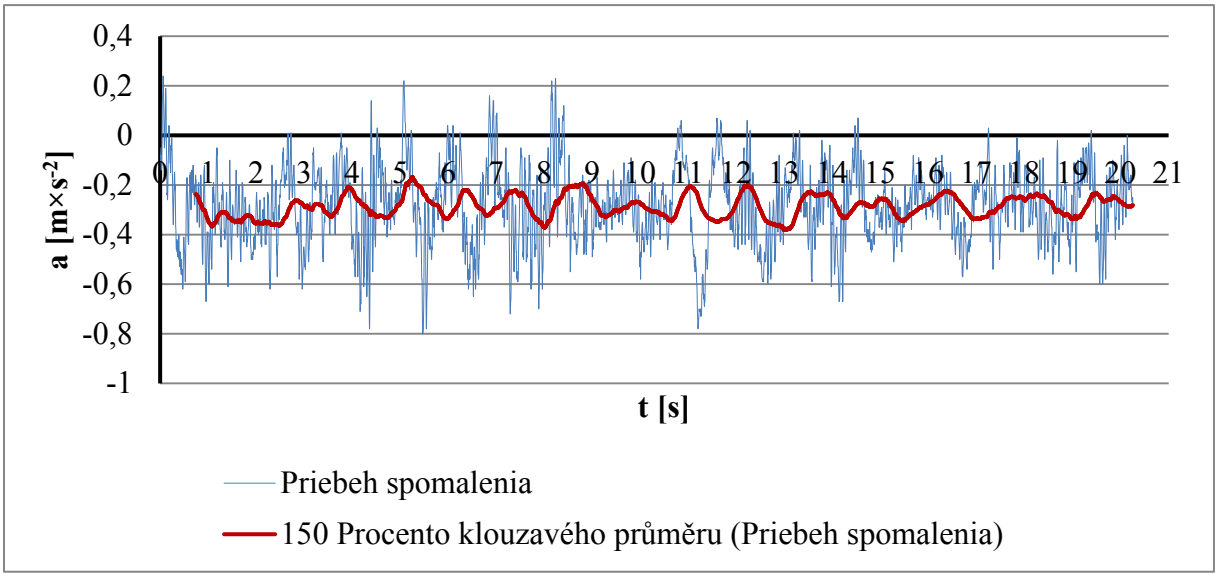
$v_0 := 80\ \textbf{\textit{kph}}$

$t := 14.6\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 63\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 290.9\ \textbf{\textit{m}}$

Redukčný 6 prevodový stupeň



Obr. č. 34 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 6 redukčnom prevode

$a_{pr} = 0{,}284\ \mathrm{m/s^2}$; $a_{max} = 0{,}80\ \mathrm{m/s^2}$

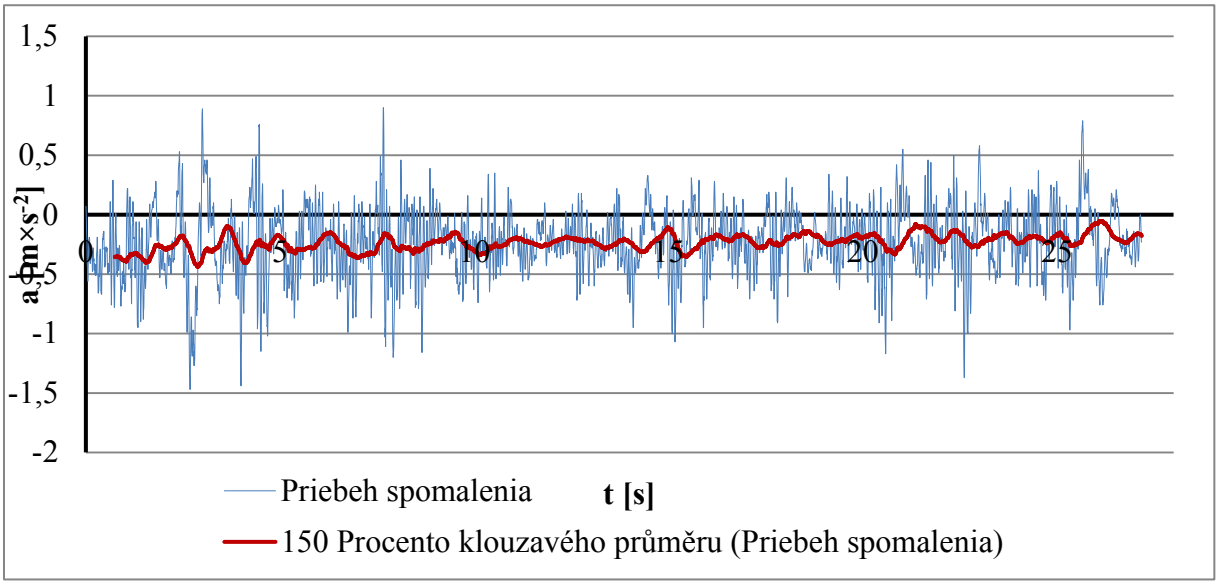
$v_0 := 80\ \textbf{\textit{kph}}$

$t := 20.255\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 59\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 391.9\ \textbf{\textit{m}}$

Normálny 6 prevodový stupeň (1. meranie)



Obr. č. 35 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 6 normálnom prevode

$a_{pr} = 0{,}235\ \mathrm{m/s^2}$; $a_{max} = 1{,}47\ \mathrm{m/s^2}$

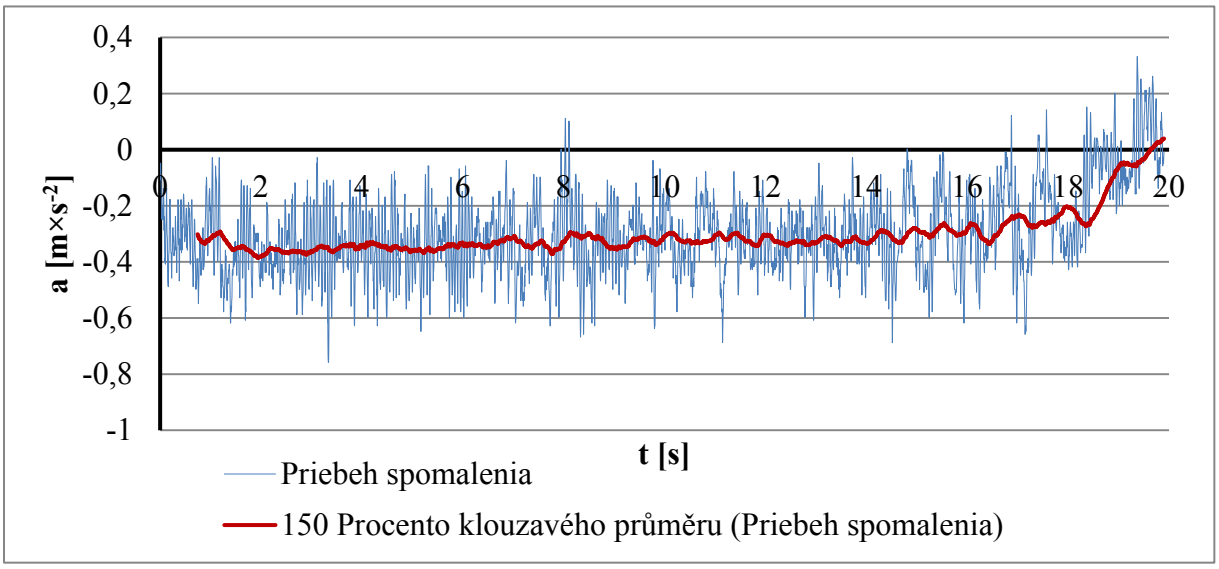
$v_0 := 70$ ***kph***

$t := 27.18$ ***s***

$v := v_0 - a \cdot t = 47$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 441.7$ ***m***

Normálny 6 prevodový stupeň (2. meranie)



Obr. č. 36 – Spomalenie 2. stupňom motorovej brzdi pri zaradenom 6 normálnom prevode

$a_{pr} = 0{,}295\ \mathrm{m/s^2};\ a_{max} = 0{,}76\ \mathrm{m/s^2}$

$v_0 := 87\ \textbf{\textit{kph}}$

$t := 19.9\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 66\ \textbf{\textit{kph}}$

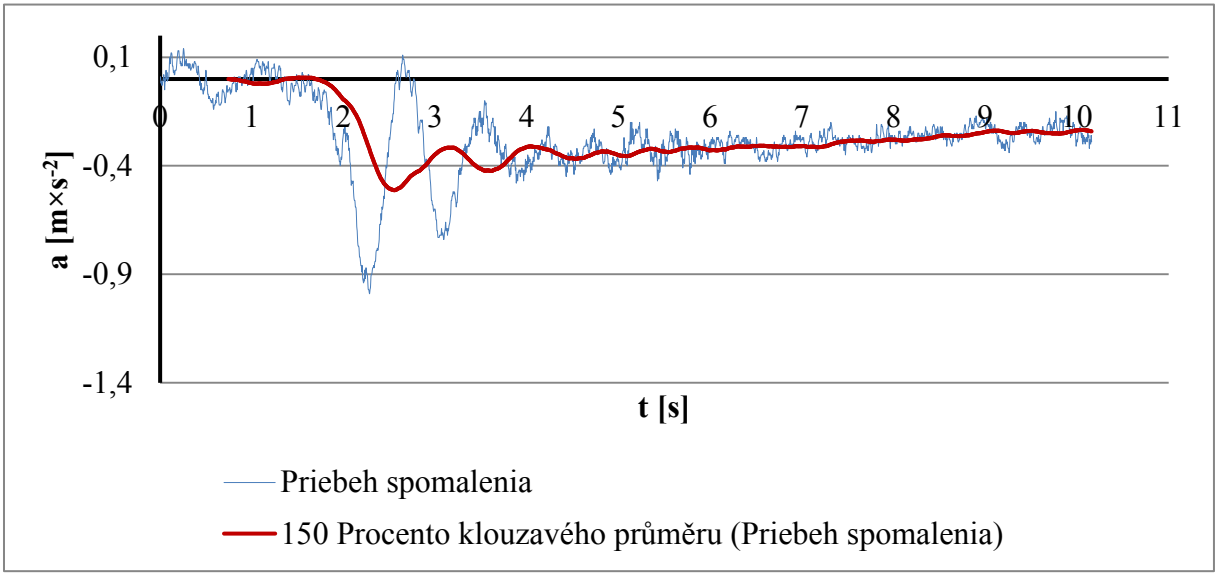
$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 422.5\ \textbf{\textit{m}}$

2 POZDĹŽNE SPOMALENIE VOZIDLA DAF XF105.460 SC

2.1 PRIEBEH SPOMALENIA NALOŽENÉHO NÁKLADNÉHO VOZIDLA

2.1.1 Brzdenie motorom

Malá rada 2 prevodový stupeň



Obr. č. 37 – Spomalenie brzdením motora pri zaradenom 2 prevodovom stupni malej rady

$a_{pr} = 0{,}262\ \mathrm{m/s^2};\ a_{max} = 0{,}99\ \mathrm{m/s^2}$

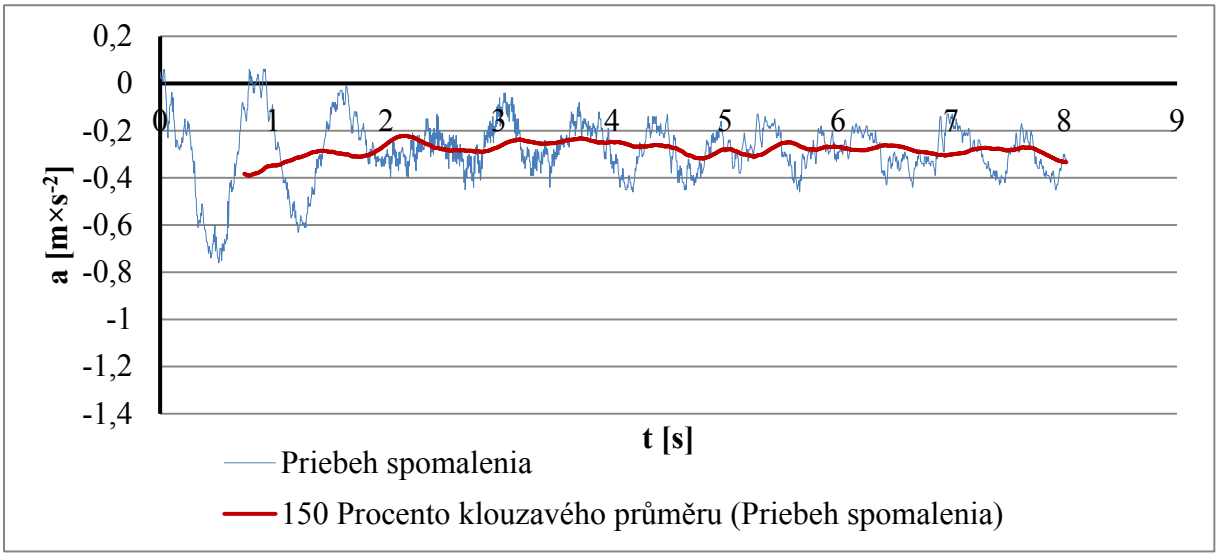
$v_0 := 15\ \textbf{\textit{kph}}$

$t := 10.16\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 5\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 28.8\ \textbf{\textit{m}}$

Malá rada 3 prevodový stupeň



Obr. č. 38 – Spomalenie brzdením motora pri zaradenom 3 prevodovom stupni malej rady

$a_{pr} = 0{,}284\ \mathrm{m/s^2}$; $a_{max} = 0{,}76\ \mathrm{m/s^2}$

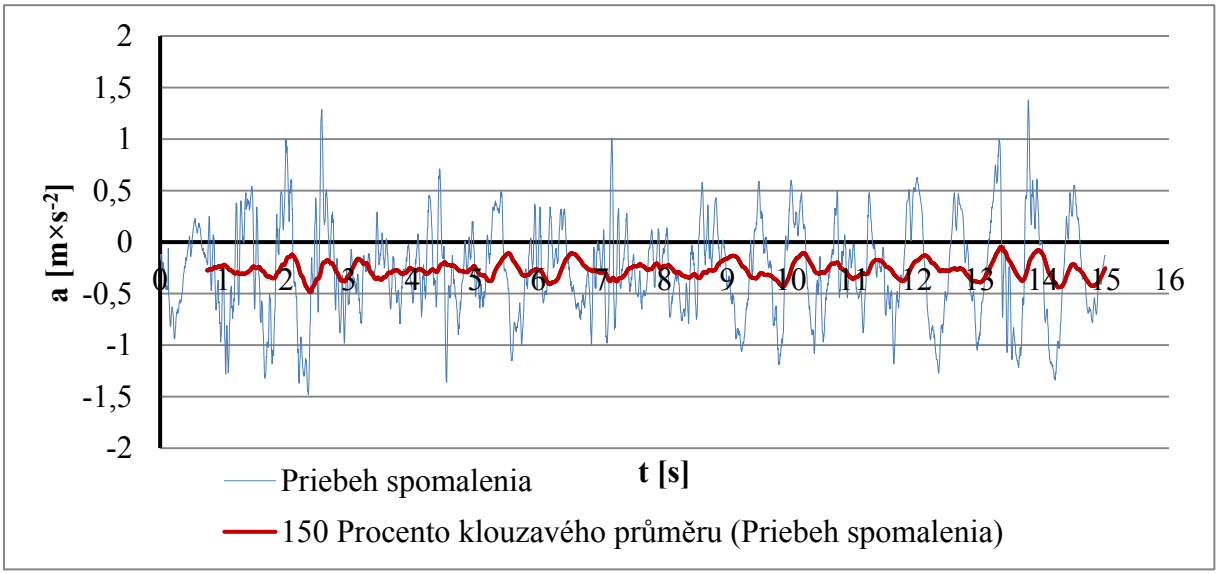
$v_0 := 20$ ***kph***

$t := 8.02$ ***s***

$v := v_0 - a \cdot t = 12$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 35.4$ ***m***

Veľká rada 2 prevodový stupeň



Obr. č. 39 – Spomalenie brzdením motora pri zaradenom 2 prevodovom stupni veľkej rady

$a_{pr} = 0{,}275\ \mathrm{m/s^2}$; $a_{max} = 1{,}48\ \mathrm{m/s^2}$

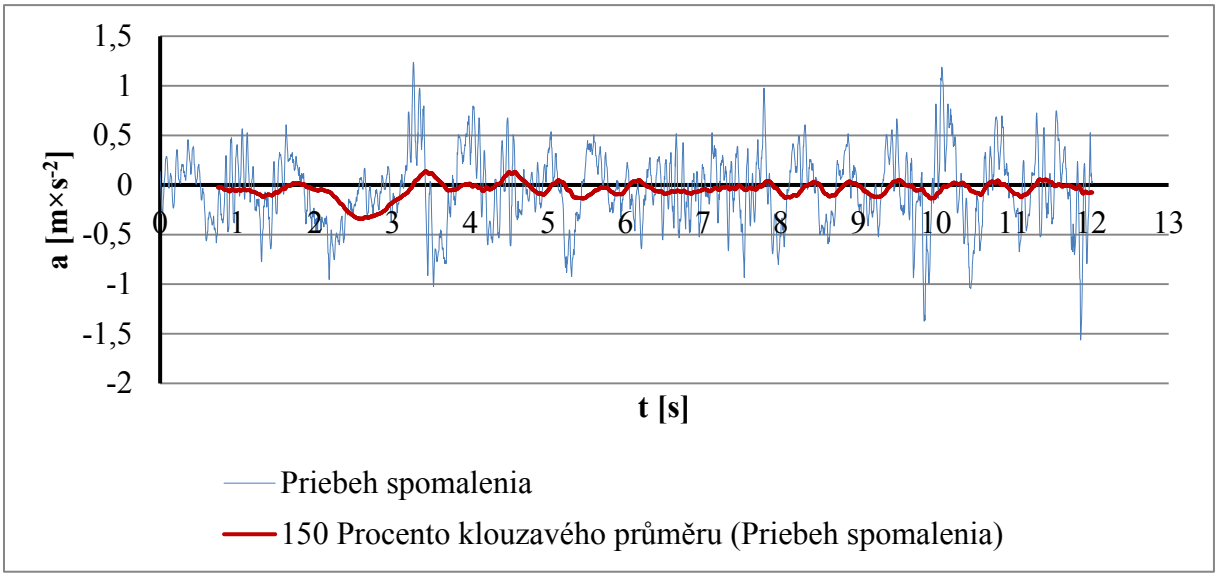
$v_0 := 55$ ***kph***

$t := 14.99$ ***s***

$v := v_0 - a \cdot t = 40$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 198.1$ ***m***

Veľká rada 3 redukovaný prevodový stupeň



Obr. č. 40 – Spomalenie brzdením motora pri zaradenom 3 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}050\ \mathrm{m/s^2}$; $a_{max} = 1{,}56\ \mathrm{m/s^2}$

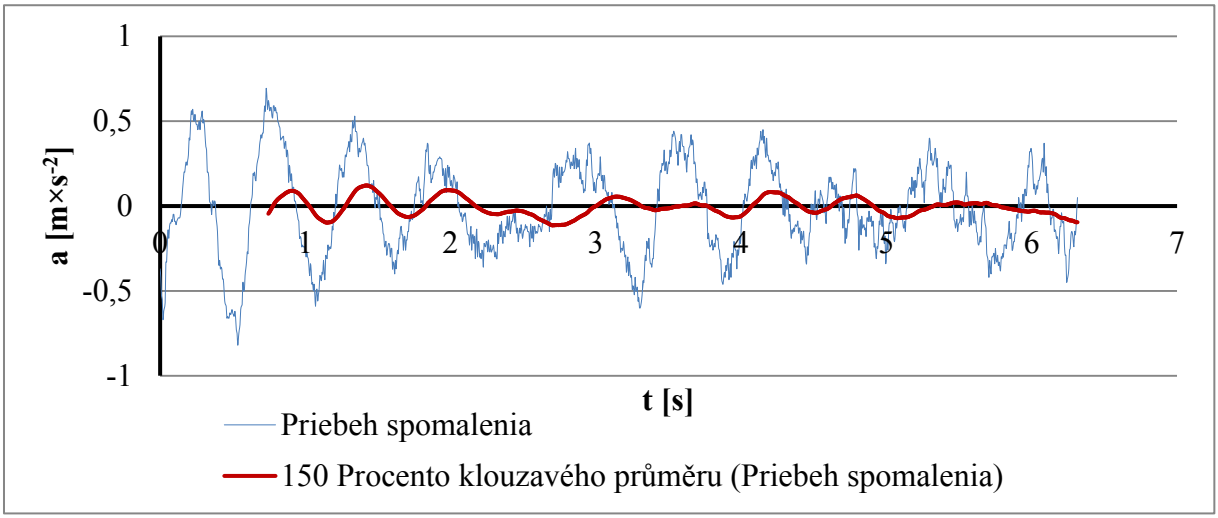
$v_0 := 62$ ***kph***

$t := 12.015$ ***s***

$v := v_0 - a \cdot t = 60$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 203.3$ ***m***

Veľká rada 4 redukovaný prevodový stupeň



Obr. č. 41 – Spomalenie brzdením motora pri zaradenom 4 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}012\ \mathrm{m/s^2}$; $a_{max} = 0{,}82\ \mathrm{m/s^2}$

$v_0 := 66$ ***kph***

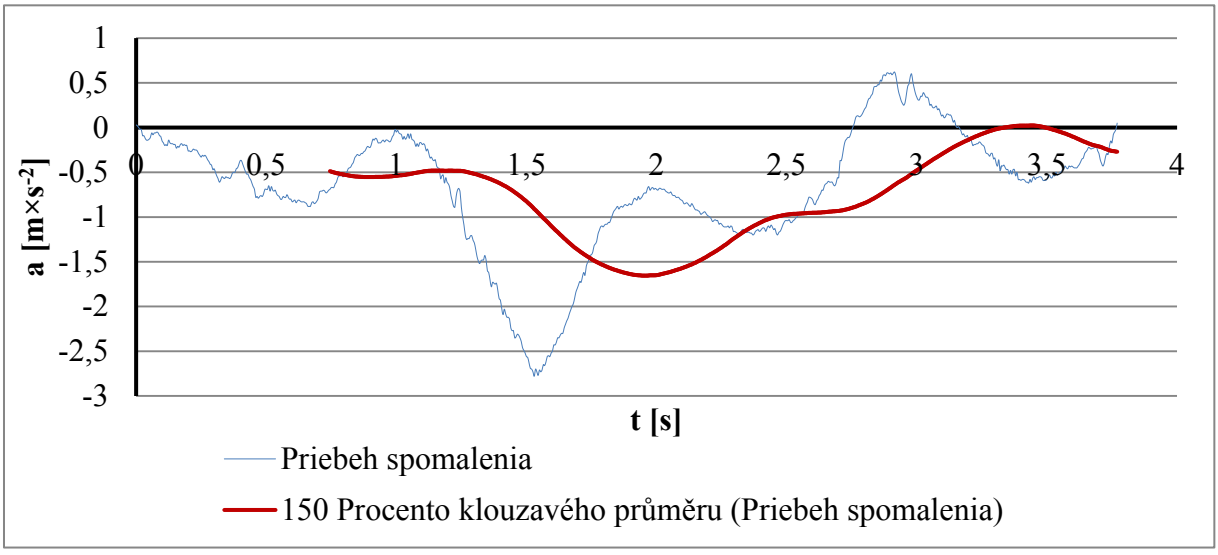
$t := 6.315$ ***s***

$v := v_0 - a \cdot t = 66$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 115.5$ ***m***

2.1.2 Motorová brzda

Malá rada 2 prevodový stupeň



Obr. č. 42 – Spomalenie motorovou brzdou pri zaradenom 2 prevodovom stupni malej rady

$a_{pr} = 0{,}675\ \mathrm{m/s^2}$; $a_{max} = 2{,}78\ \mathrm{m/s^2}$

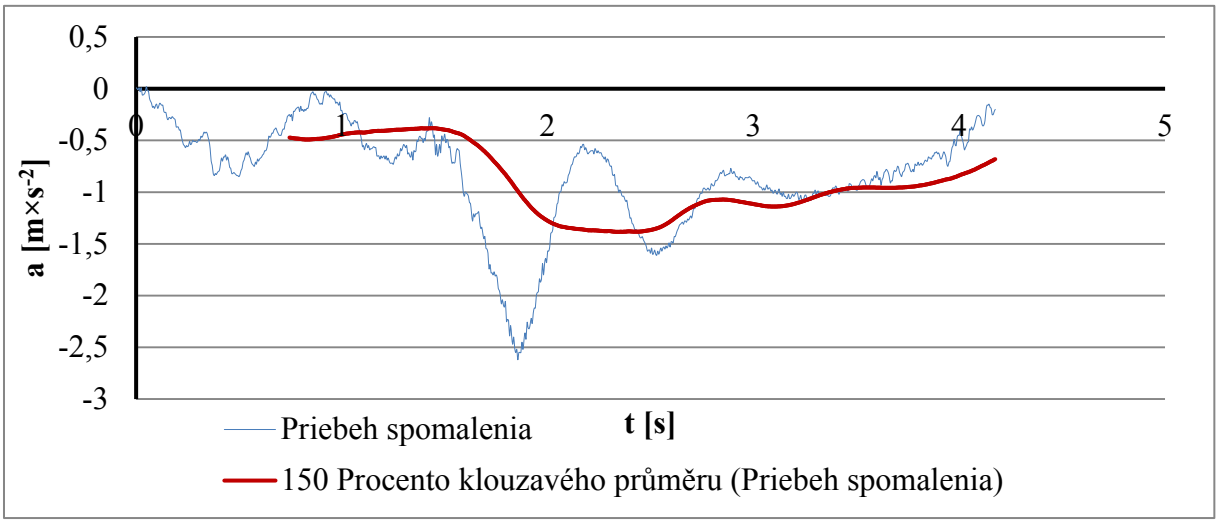
$v_0 := 13\ \textbf{\textit{kph}}$

$t := 3.77\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 4\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 8.8\ \textbf{\textit{m}}$

Malá rada 3 prevodový stupeň (1. meranie)



Obr. č. 43 – Spomalenie motorovou brzdou pri zaradenom 3 prevodovom stupni malej rady

$a_{pr} = 0{,}827\ \mathrm{m/s^2}$; $a_{max} = 2{,}62\ \mathrm{m/s^2}$

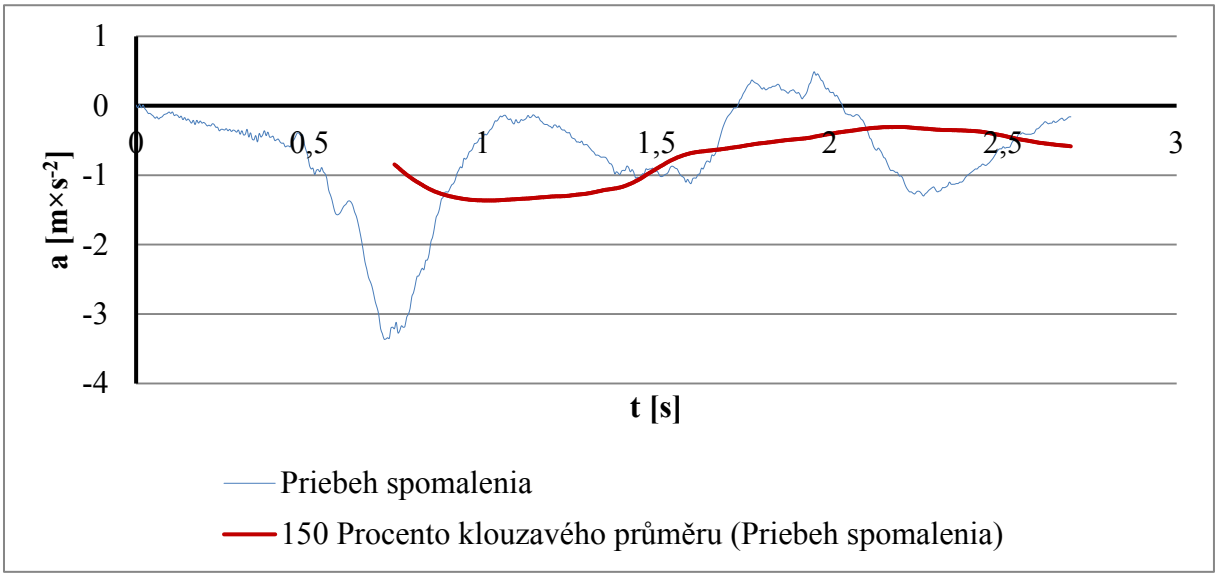
$v_0 := 16\ \textbf{\textit{kph}}$

$t := 4.175\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 4\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 11.3\ \textbf{\textit{m}}$

Malá rada 3 prevodový stupeň (2. meranie)



Obr. č. 44 – Spomalenie motorovou brzdou pri zaradenom 3 prevodovom stupni malej rady

$a_{pr} = 0{,}701\ \mathrm{m/s^2}$; $a_{max} = 3{,}36\ \mathrm{m/s^2}$

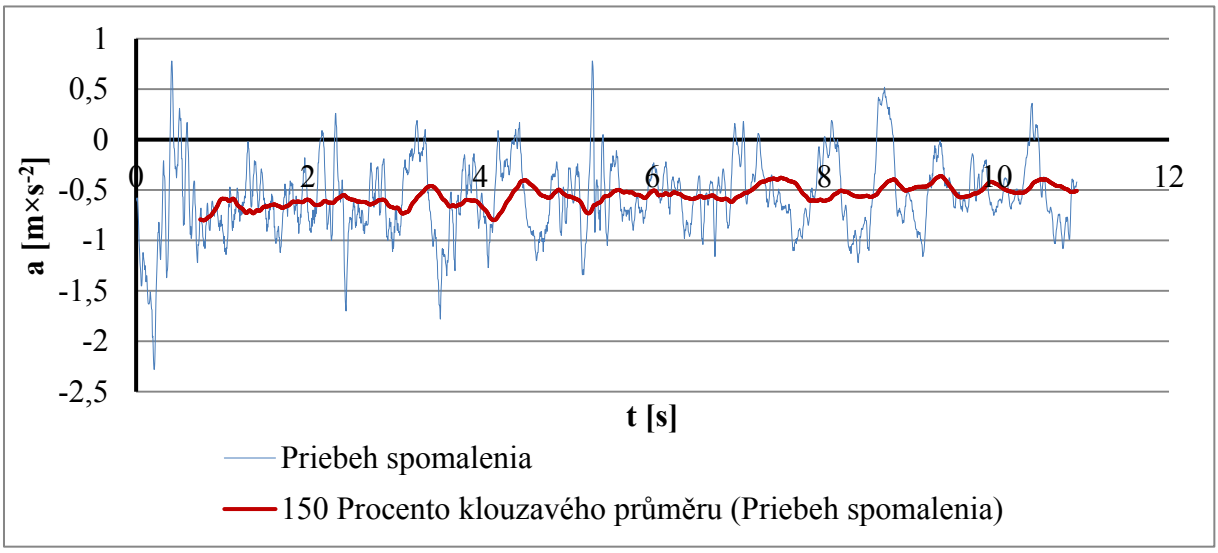
$v_0 := 13$ ***kph***

$t := 2.695$ ***s***

$v := v_0 - a \cdot t = 6$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 7.2$ ***m***

Veľká rada 2 prevodový stupeň



Obr. č. 45 – Spomalenie motorovou brzdou pri zaradenom 2 prevodovom stupni veľkej rady

$a_{pr} = 0{,}574\ \mathrm{m/s^2}$; $a_{max} = 2{,}28\ \mathrm{m/s^2}$

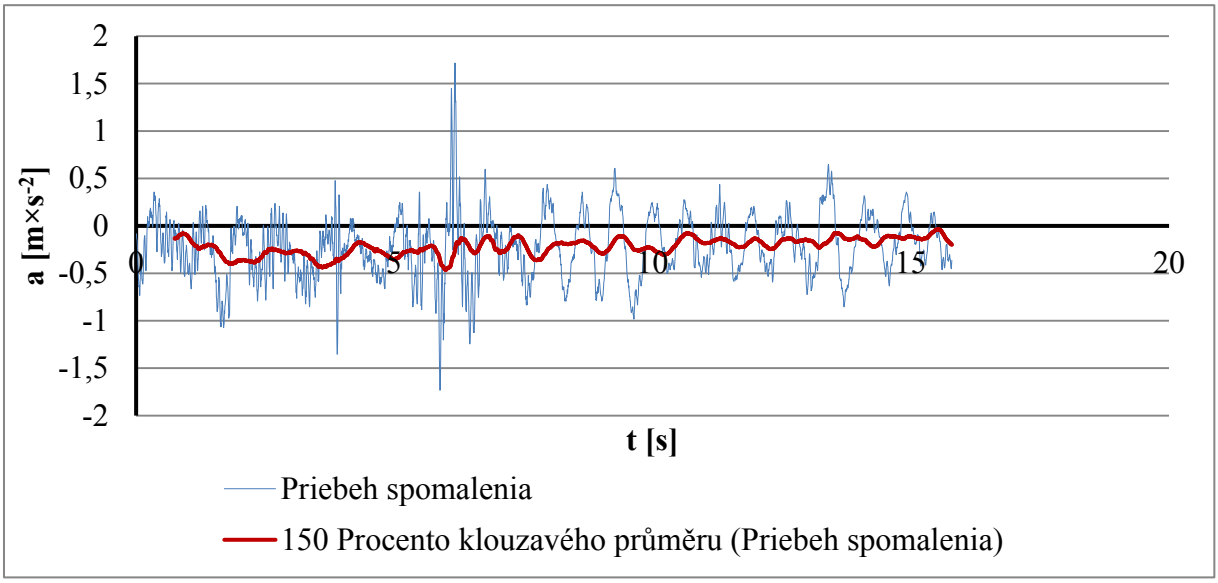
$v_0 := 55$ ***kph***

$t := 10.93$ ***s***

$v := v_0 - a \cdot t = 32$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 132.7$ ***m***

Veľká rada 3 redukovaný prevodový stupeň



Obr. č. 46 – Spomalenie motorovou brzdou pri zaradenom 3 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}218\ \mathrm{m/s^2}$; $a_{max} = 1{,}73\ \mathrm{m/s^2}$

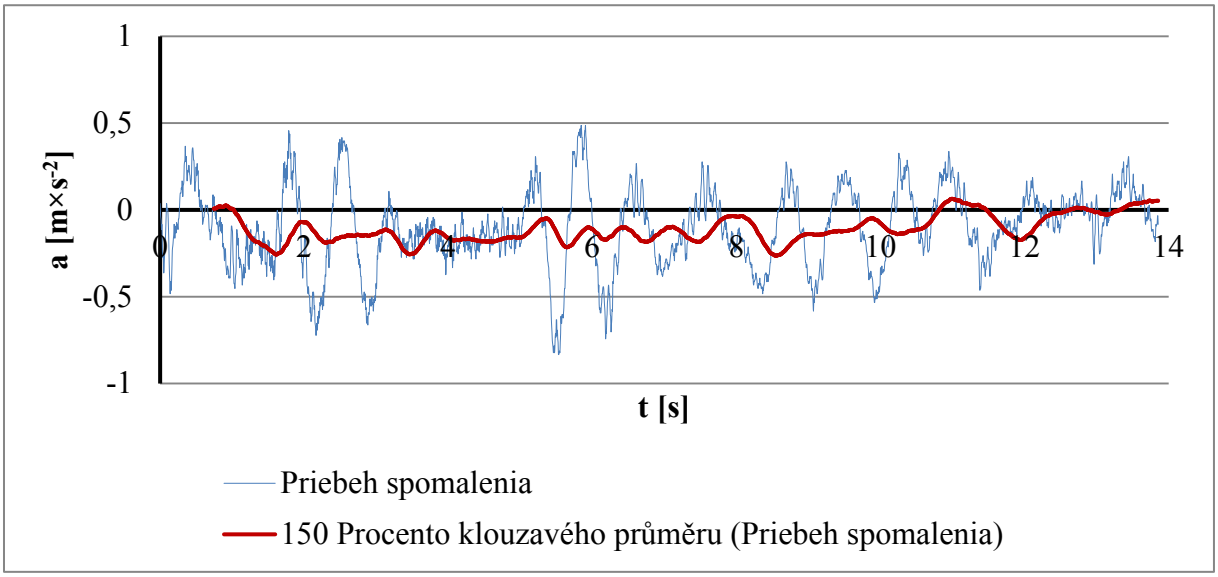
$v_0 := 44$ ***kph***

$t := 15.795$ ***s***

$v := v_0 - a \cdot t = 32$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 165.9$ ***m***

Veľká rada 4 redukovaný prevodový stupeň



Obr. č. 47 – Spomalenie motorovou brzdou pri zaradenom 4 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}103\ \mathrm{m/s^2}$; $a_{max} = 0{,}83\ \mathrm{m/s^2}$

$v_0 := 54\ \textbf{\textit{kph}}$

$t := 13.855\ \textbf{\textit{s}}$

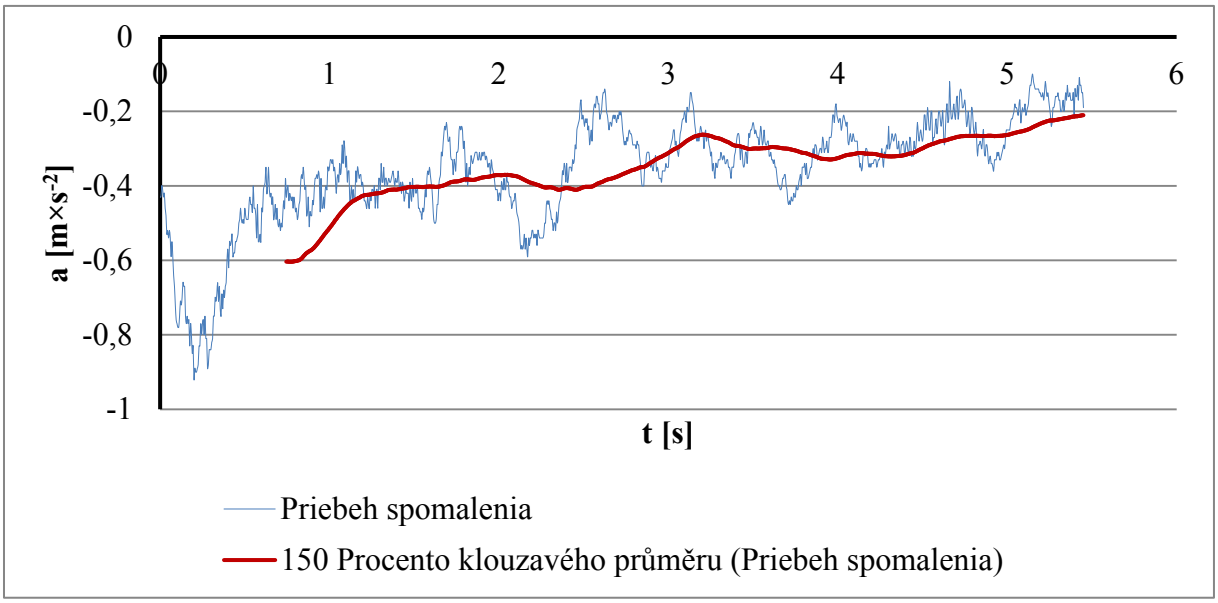
$v := v_0 - a \cdot t = 49\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 197.9\ \textbf{\textit{m}}$

2.2 PRIEBEH SPOMALENIA PRÁZDNEHO NÁKLADNÉHO VOZIDLA

2.2.1 Brzdenie motorom

Malá rada 2 prevodový stupeň (1. meranie)



Obr. č. 48 – Spomalenie brzdením motora pri zaradenom 2 prevodovom stupni malej rady

$a_{pr} = 0{,}663\ \mathrm{m/s^2}$; $a_{max} = 1{,}32\ \mathrm{m/s^2}$

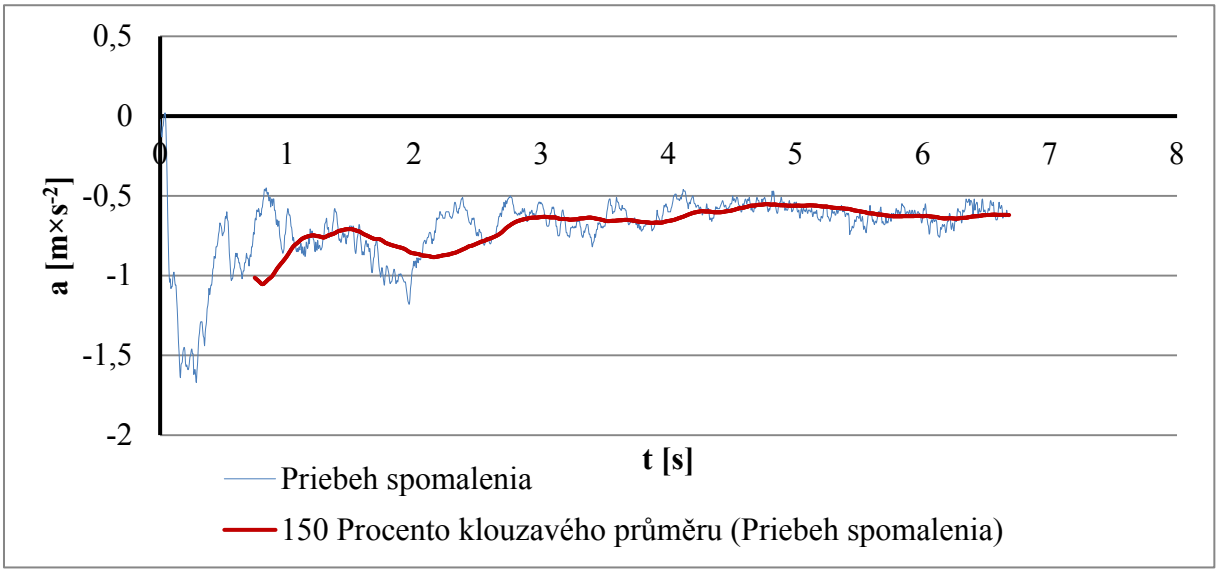
$v_0 := 26\ \mathbf{kph}$

$t := 8.71\ \mathbf{s}$

$v := v_0 - a \cdot t = 5\ \mathbf{kph}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 37.8\ \mathbf{m}$

Malá rada 2 prevodový stupeň (2. meranie)



Obr. č. 49 – Spomalenie brzdením motora pri zaradenom 2 prevodovom stupni malej rady

$a_{pr} = 0{,}700\ \mathrm{m/s^2}$; $a_{max} = 1{,}67\ \mathrm{m/s^2}$

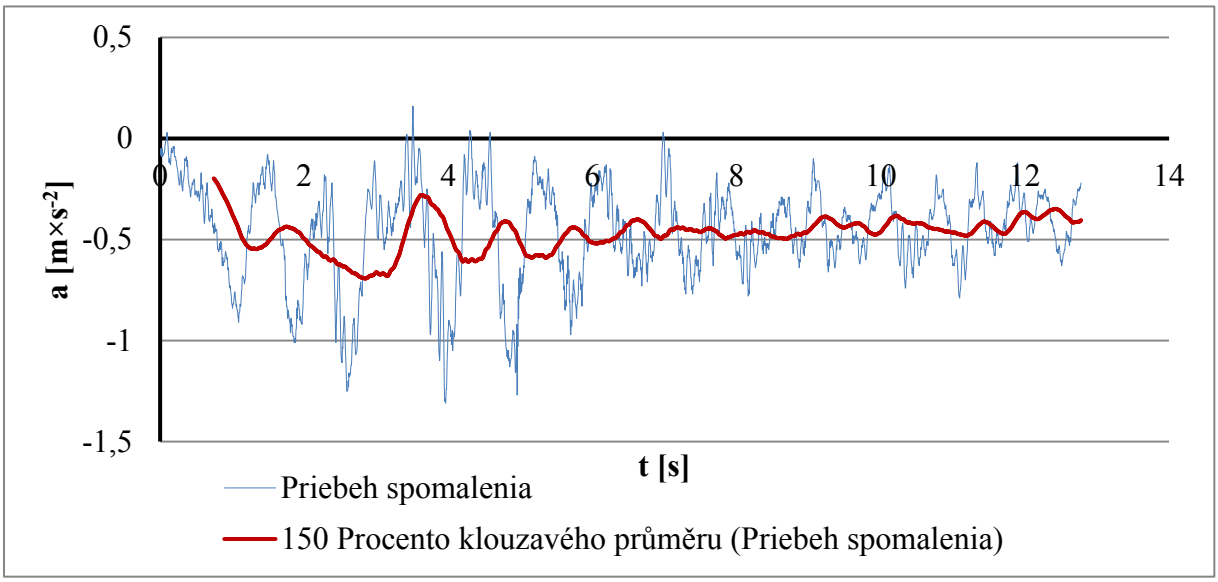
$v_0 := 25$ ***kph***

$t := 6.68$ ***s***

$v := v_0 - a \cdot t = 8$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 30.8$ ***m***

Malá rada 3 prevodový stupeň (1. meranie)



Obr. č. 50 – Spomalenie brzdením motora pri zaradenom 3 prevodovom stupni malej rady

$a_{pr} = 0{,}460\ \mathrm{m/s^2}$; $a_{max} = 1{,}31\ \mathrm{m/s^2}$

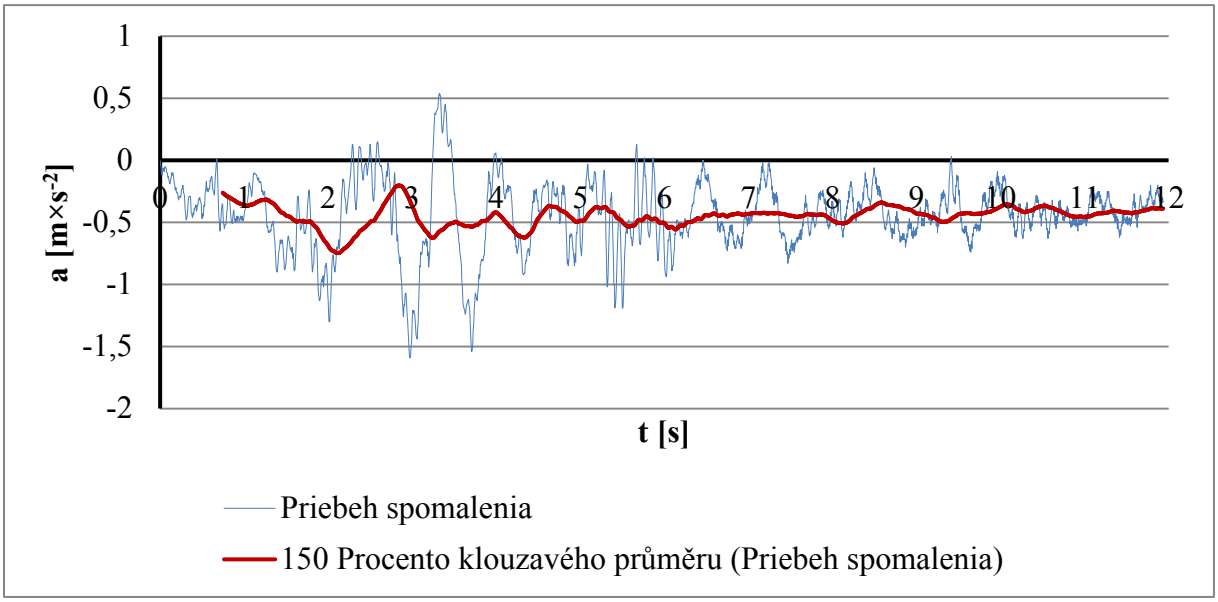
$v_0 := 27\ \textbf{\textit{kph}}$

$t := 12.78\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 6\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 58.3\ \textbf{\textit{m}}$

Malá rada 3 prevodový stupeň (2. meranie)



Obr. č. 51 – Spomalenie brzdením motora pri zaradenom 3 prevodovom stupni malej rady

$a_{pr} = 0{,}439\ \mathrm{m/s^2}$; $a_{max} = 1{,}59\ \mathrm{m/s^2}$

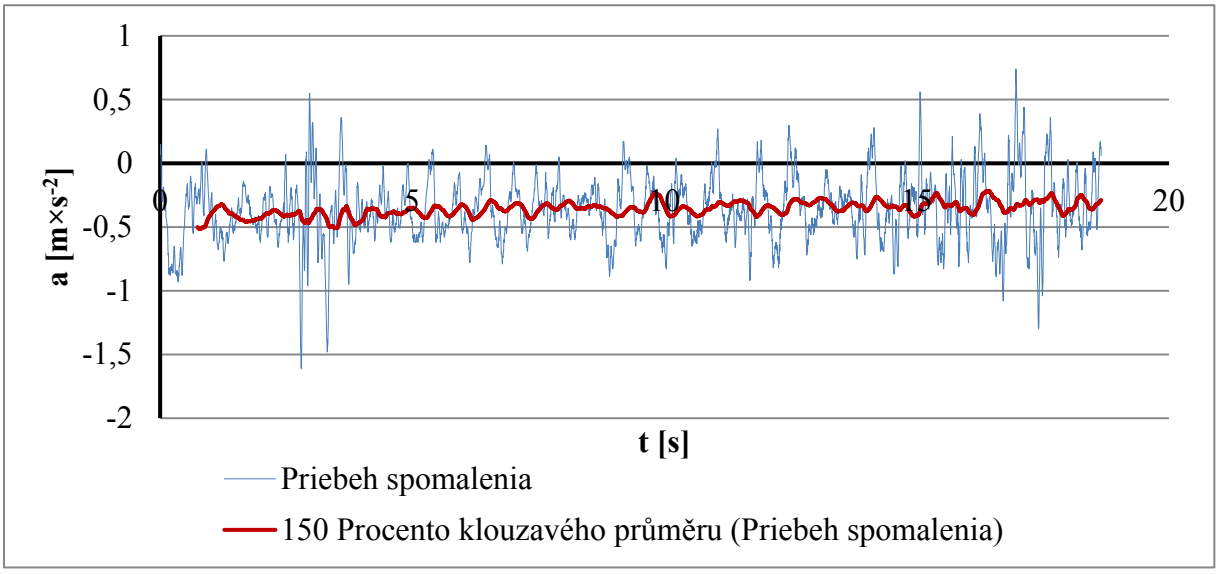
$v_0 := 33\ \textbf{\textit{kph}}$

$t := 11.935\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 14\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 78.1\ \textbf{\textit{m}}$

Veľká rada 2 prevodový stupeň (1. meranie)



Obr. č. 52 – Spomalenie brzdením motora pri zaradenom 2 prevodovom stupni veľkej rady

$a_{pr} = 0{,}359\ \mathrm{m/s^2}$; $a_{max} = 1{,}61\ \mathrm{m/s^2}$

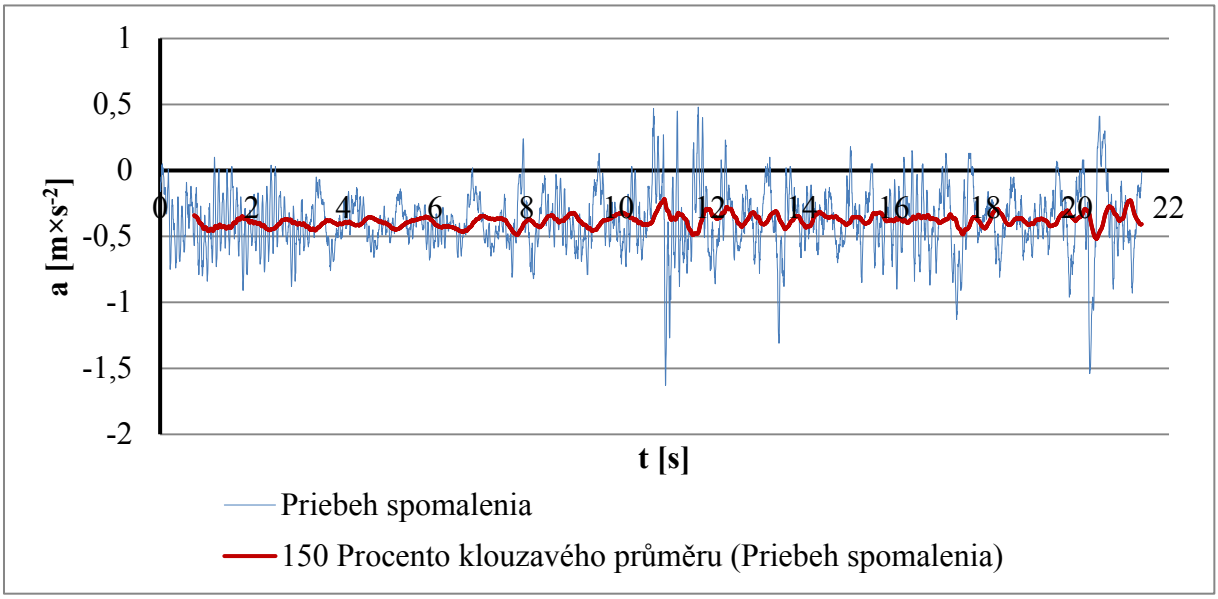
$v_0 := 55$ ***kph***

$t := 18.655$ ***s***

$v := v_0 - a \cdot t = 31$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 222.5$ ***m***

Veľká rada 2 prevodový stupeň (2. meranie)



Obr. č. 53 – Spomalenie brzdením motora pri zaradenom 2 prevodovom stupni veľkej rady

$a_{pr} = 0{,}381\ \mathrm{m/s^2}$; $a_{max} = 1{,}63\ \mathrm{m/s^2}$

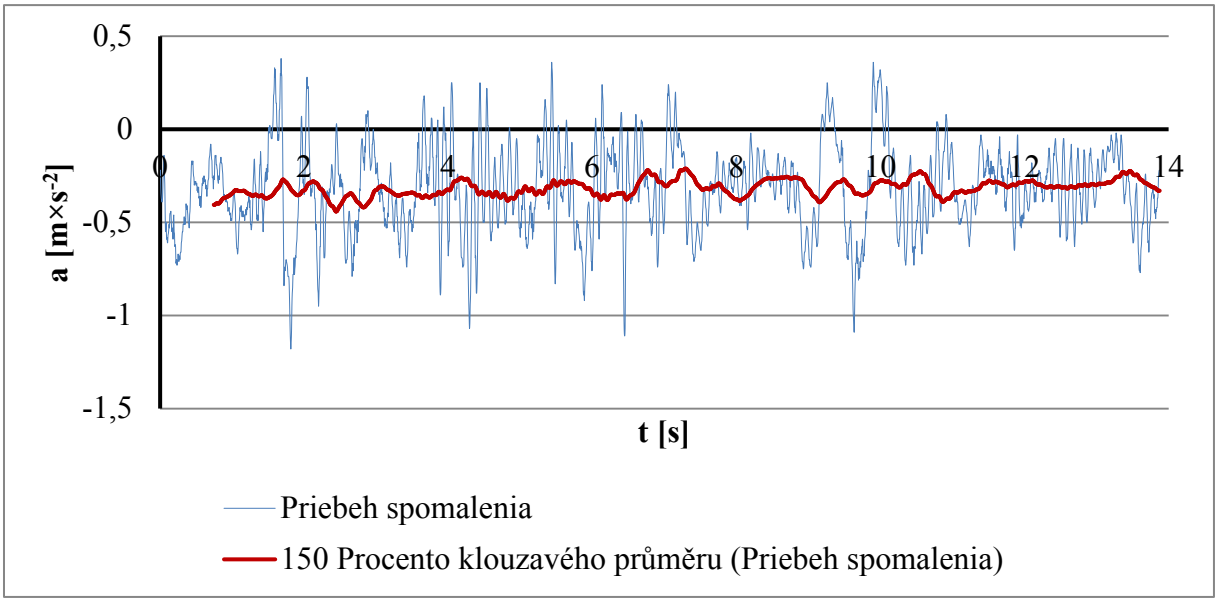
$v_0 := 60\ \textbf{\textit{kph}}$

$t := 21.405\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 31\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 269.5\ \textbf{\textit{m}}$

Veľká rada 3 redukovaný prevodový stupeň



Obr. č. 54 – Spomalenie brzdením motora pri zaradenom 3 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}322\ \mathrm{m/s^2}$; $a_{max} = 1{,}18\ \mathrm{m/s^2}$

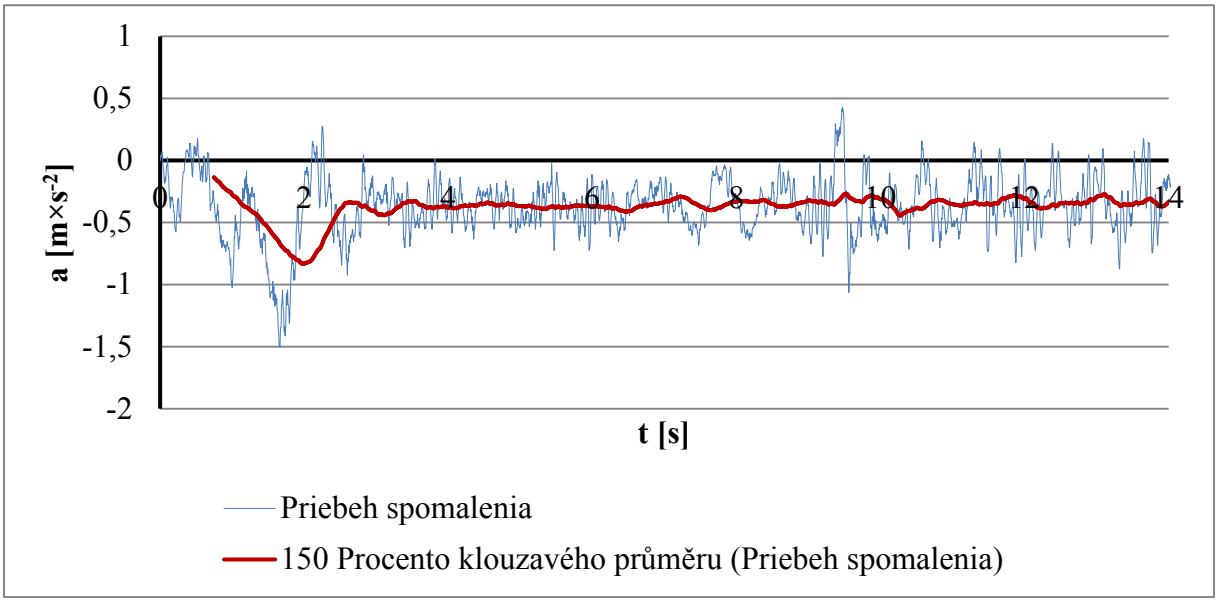
$v_0 := 63\ \textbf{\textit{kph}}$

$t := 13.875\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 47\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 211.8\ \textbf{\textit{m}}$

Veľká rada 4 redukovaný prevodový stupeň



Obr. č. 55 – Spomalenie brzdením motora pri zaradenom 4 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}349\ \mathrm{m/s^2}$; $a_{max} = 1{,}50\ \mathrm{m/s^2}$

$v_0 := 78\ \ \textbf{\textit{kph}}$

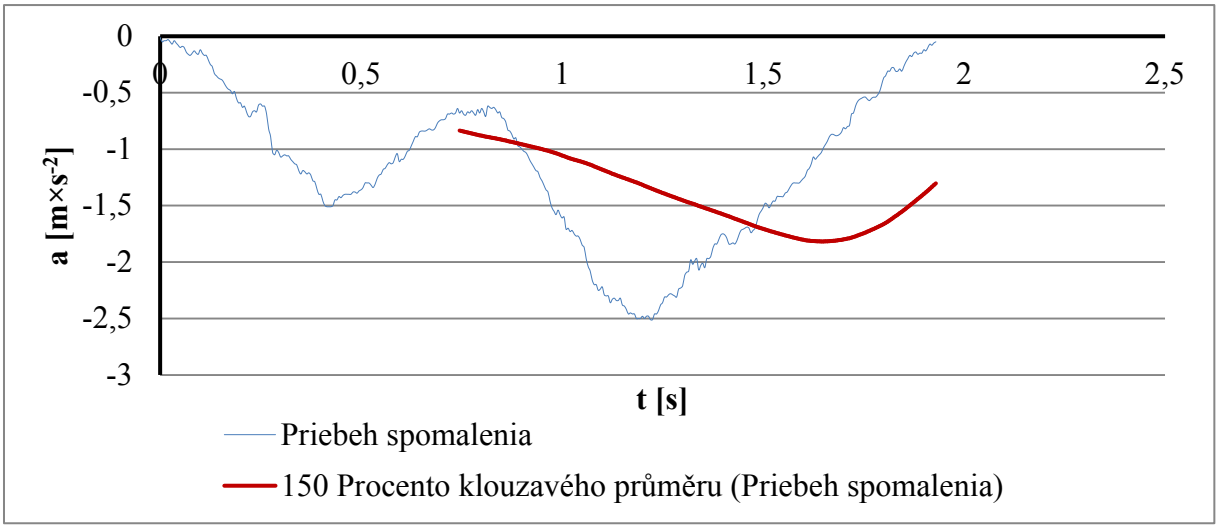
$t := 19.98\ \ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 53\ \ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 363.2\ \ \textbf{\textit{m}}$

2.2.2 Motorová brzda

Malá rada 2 prevodový stupeň (1. meranie)



Obr. č. 56 – Spomalenie motorovou brzdou pri zaradenom 2 prevodovom stupni malej rady

$a_{pr} = 1{,}154\ \mathrm{m/s^2}$; $a_{max} = 2{,}51\ \mathrm{m/s^2}$

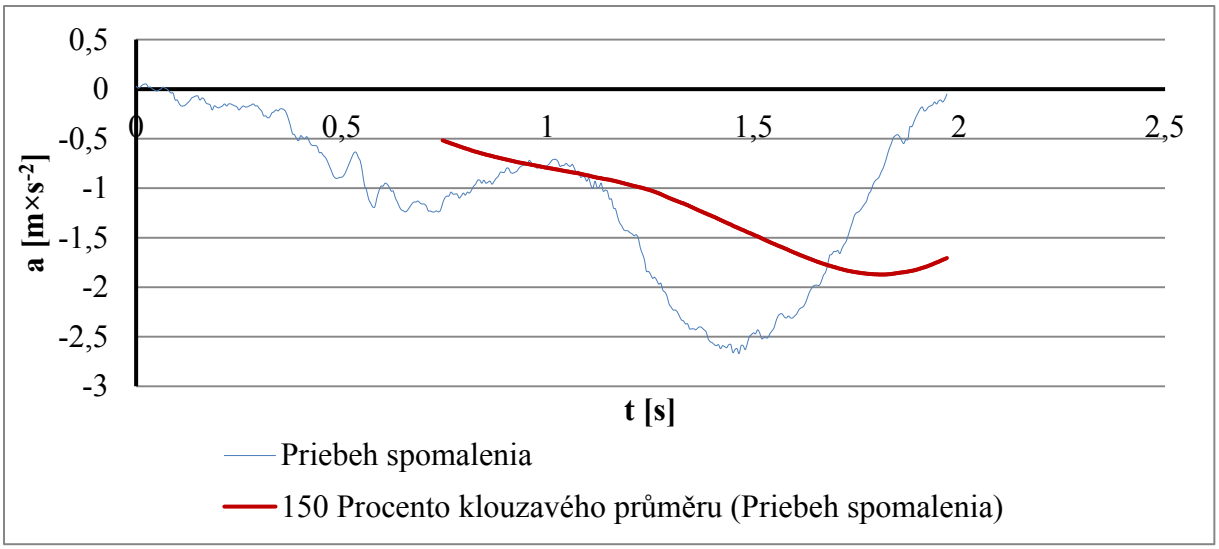
$v_0 := 14\ \ kph$

$t := 1.93\ \ s$

$v := v_0 - a \cdot t = 6\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 5.4\ \ m$

Malá rada 2 prevodový stupeň (2. meranie)



Obr. č. 57 – Spomalenie motorovou brzdou pri zaradenom 2 prevodovom stupni malej rady

$a_{pr} = 1{,}075\ \mathrm{m/s^2}$; $a_{max} = 2{,}67\ \mathrm{m/s^2}$

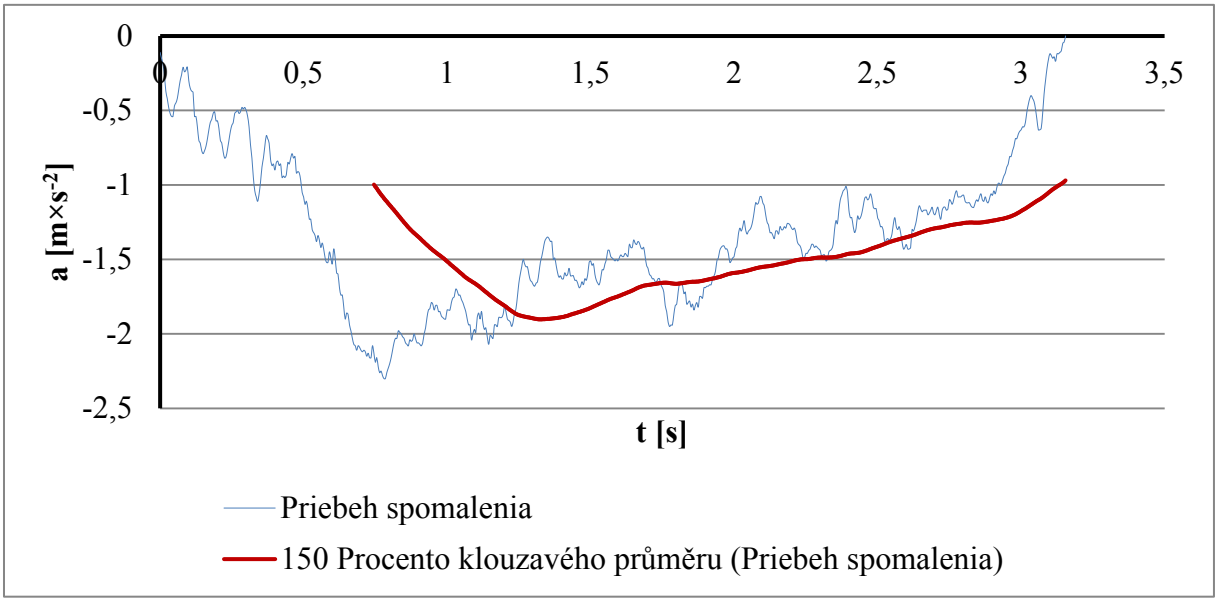
$v_0 := 18\ \textbf{\textit{kph}}$

$t := 1.97\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 10\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 7.8\ \textbf{\textit{m}}$

Malá rada 3 prevodový stupeň (1. meranie)



Obr. č. 58 – Spomalenie motorovou brzdou pri zaradenom 3 prevodovom stupni malej rady

$a_{pr} = 1{,}324\ \mathrm{m/s^2}$; $a_{max} = 2{,}30\ \mathrm{m/s^2}$

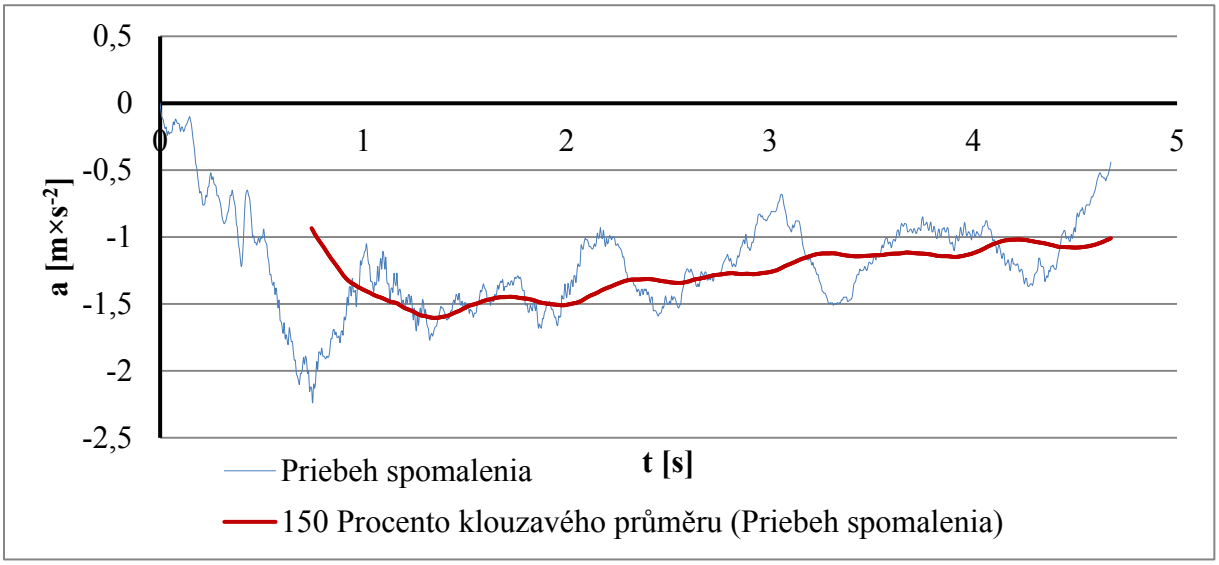
$v_0 := 26\ \textbf{\textit{kph}}$

$t := 3.155\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 11\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 16.2\ \textbf{\textit{m}}$

Malá rada 3 prevodový stupeň (2. meranie)



Obr. č. 59 – Spomalenie motorovou brzdou pri zaradenom 3 prevodovom stupni malej rady

$a_{pr} = 1{,}193\ \mathrm{m/s^2}$; $a_{max} = 2{,}24\ \mathrm{m/s^2}$

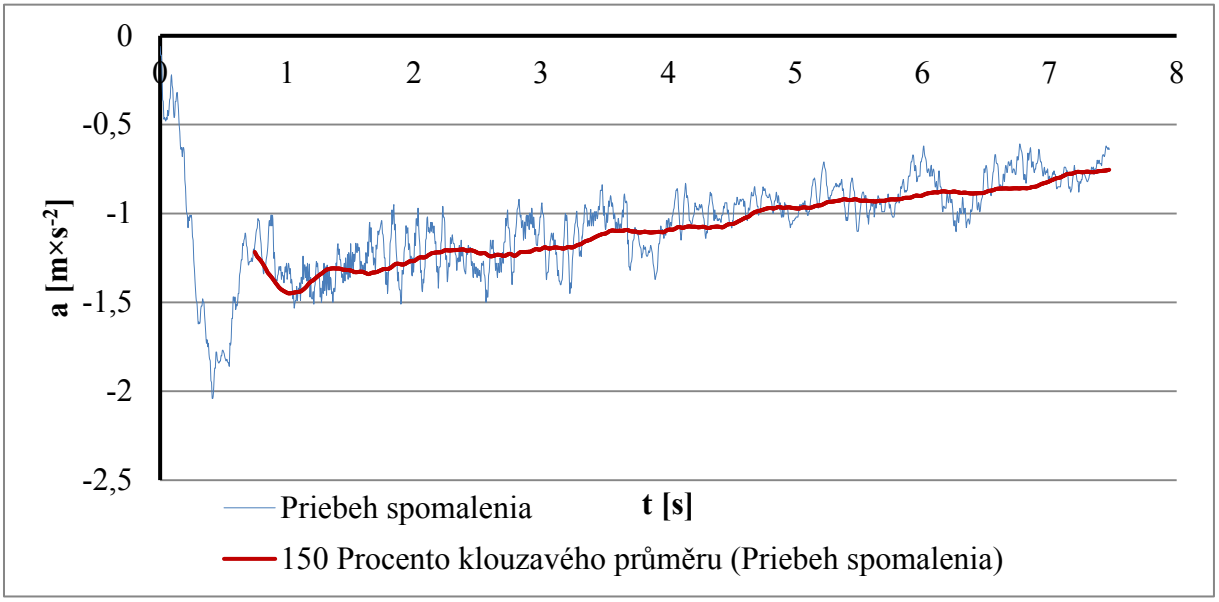
$v_0 := 30$ ***kph***

$t := 4.675$ ***s***

$v := v_0 - a \cdot t = 10$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 25.9$ ***m***

Veľká rada 2 prevodový stupeň (1. meranie)



Obr. č. 60 – Spomalenie motorovou brzdou pri zaradenom 2 prevodovom stupni veľkej rady

$a_{pr} = 1{,}057\ \mathrm{m/s^2}$; $a_{max} = 2{,}04\ \mathrm{m/s^2}$

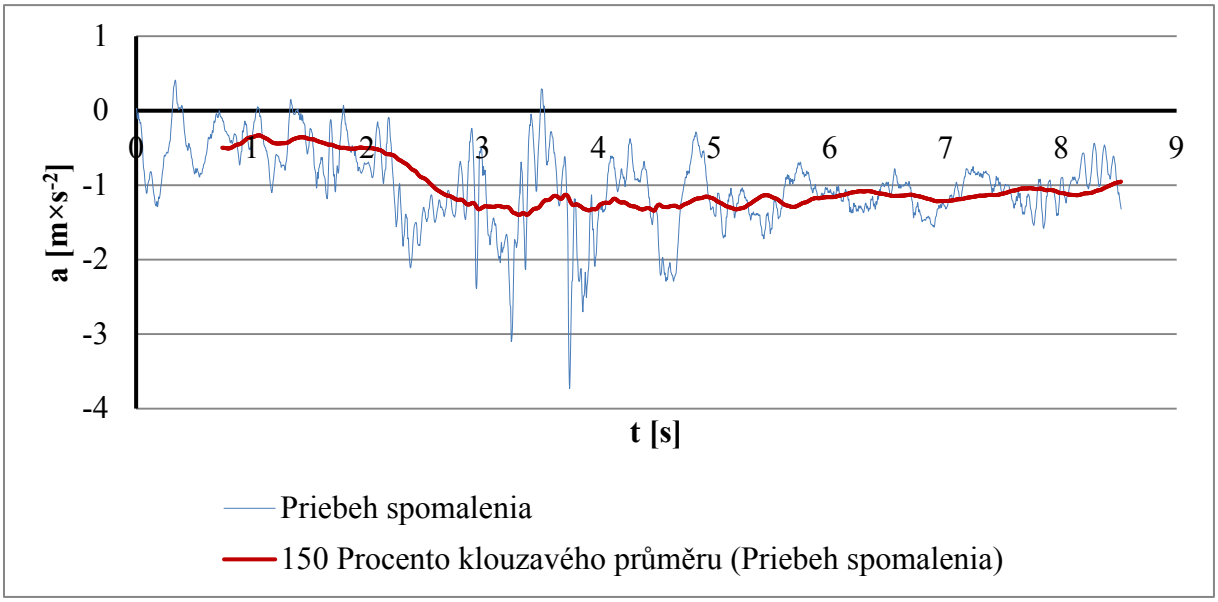
$v_0 := 46\ \textbf{\textit{kph}}$

$t := 7.47\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 18\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 66\ \textbf{\textit{m}}$

Veľká rada 2 prevodový stupeň (2. meranie)



Obr. č. 61 – Spomalenie motorovou brzdou pri zaradenom 2 prevodovom stupni veľkej rady

$a_{pr} = 1{,}004\ \mathrm{m/s^2}$; $a_{max} = 3{,}73\ \mathrm{m/s^2}$

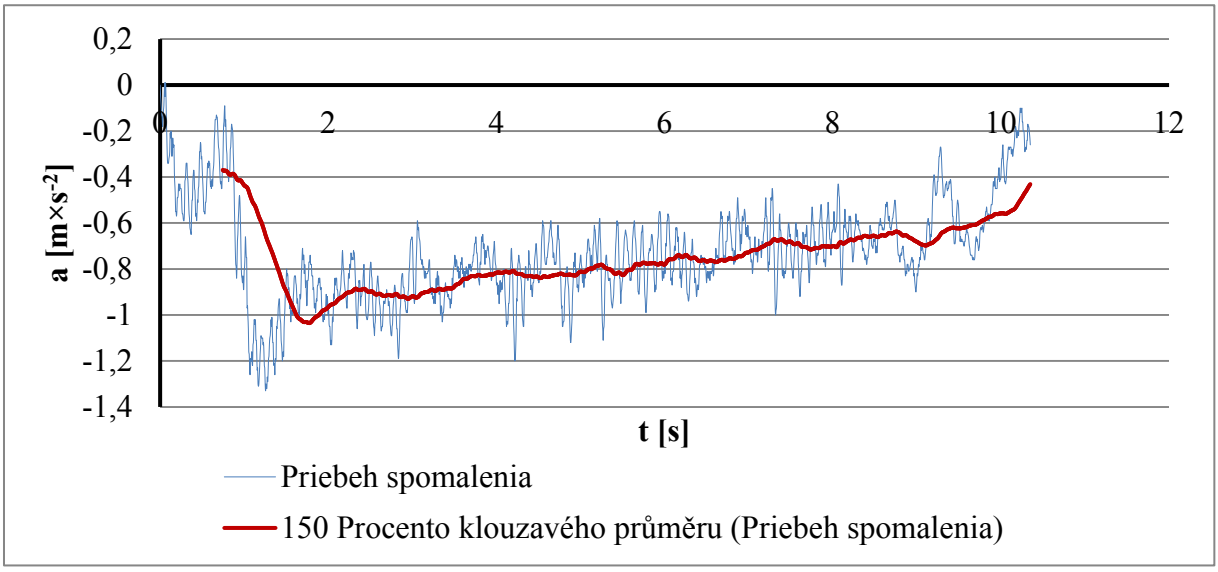
$v_0 := 57\ \textbf{\textit{kph}}$

$t := 8.52\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 26\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 98.5\ \textbf{\textit{m}}$

Veľká rada 3 redukovaný prevodový stupeň



Obr. č. 62 – Spomalenie motorovou brzdou pri zaradenom 3 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}724\ \mathrm{m/s^2}$; $a_{max} = 1{,}33\ \mathrm{m/s^2}$

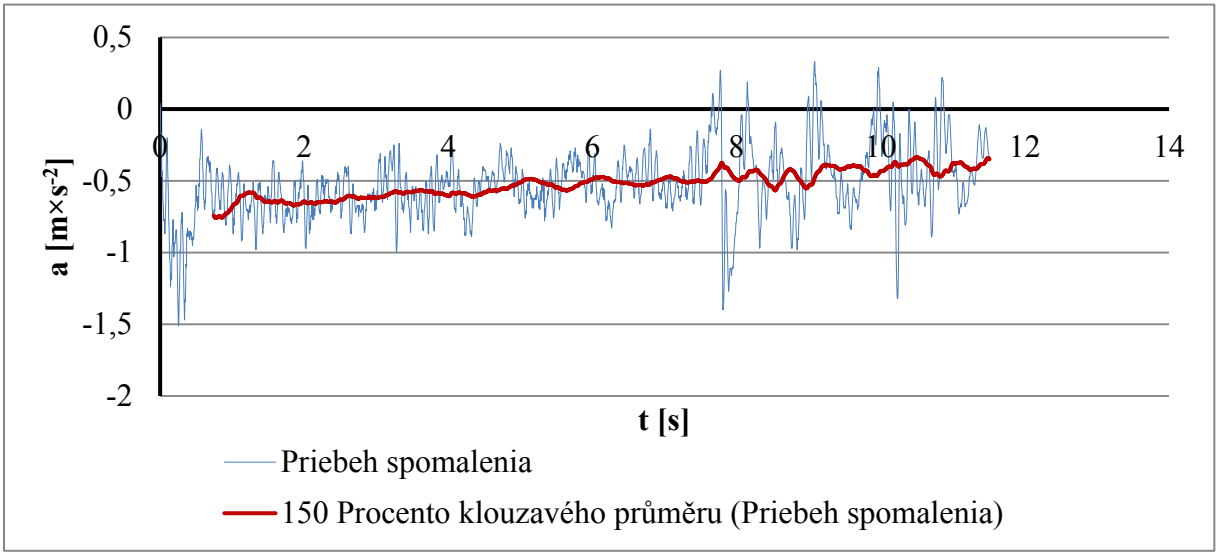
$v_0 := 59$ ***kph***

$t := 10.35$ ***s***

$v := v_0 - a \cdot t = 32$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 130.8$ ***m***

Veľká rada 4 redukovaný prevodový stupeň



Obr. č. 63 – Spomalenie motorovou brzdou pri zaradenom 4 redukovanom prevodovom stupni veľkej rady

$a_{pr} = 0{,}526\ \mathrm{m/s^2}$; $a_{max} = 1{,}51\ \mathrm{m/s^2}$

$v_0 := 78$ ***kph***

$t := 11.51$ ***s***

$v := v_0 - a \cdot t = 56$ ***kph***

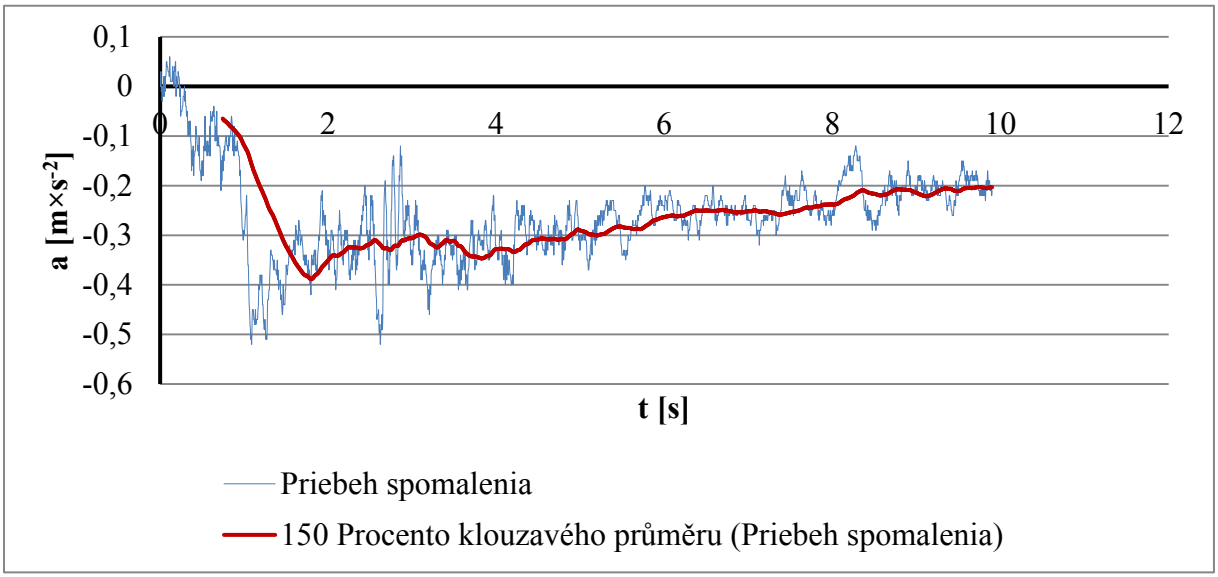
$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 214.5$ ***m***

3 POZDĹŽNE SPOMALENIE VOZIDLA SCANIA R410

3.1 PRIEBEH SPOMALENIA NALOŽENÉHO NÁKLADNÉHO VOZIDLA

3.1.1 Brzdenie motorom

4 prevodový stupeň



Obr. č. 64 – Spomalenie brzdením motora pri zaradenom 4 prevodovom stupni

$a_{pr} = 0{,}259\ \mathrm{m/s^2}$; $a_{max} = 0{,}52\ \mathrm{m/s^2}$

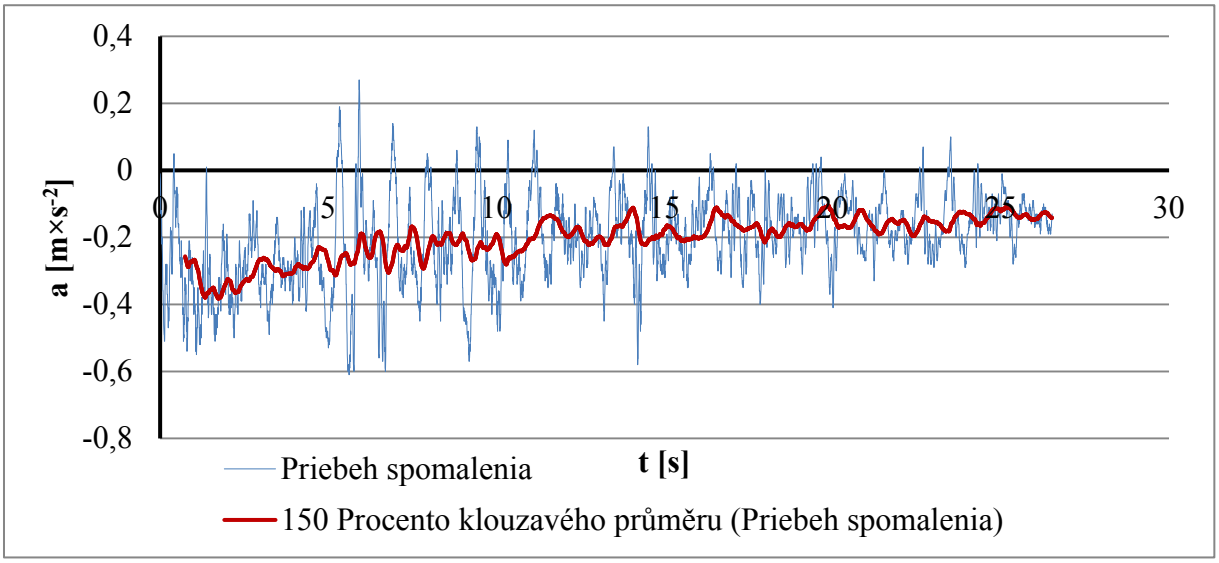
$v_0 := 20$ ***kph***

$t := 9.9$ ***s***

$v := v_0 - a \cdot t = 11$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 42.3$ ***m***

6 prevodový stupeň



Obr. č. 65 – Spomalenie brzdením motora pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}204\ \mathrm{m/s^2}$; $a_{max} = 0{,}61\ \mathrm{m/s^2}$

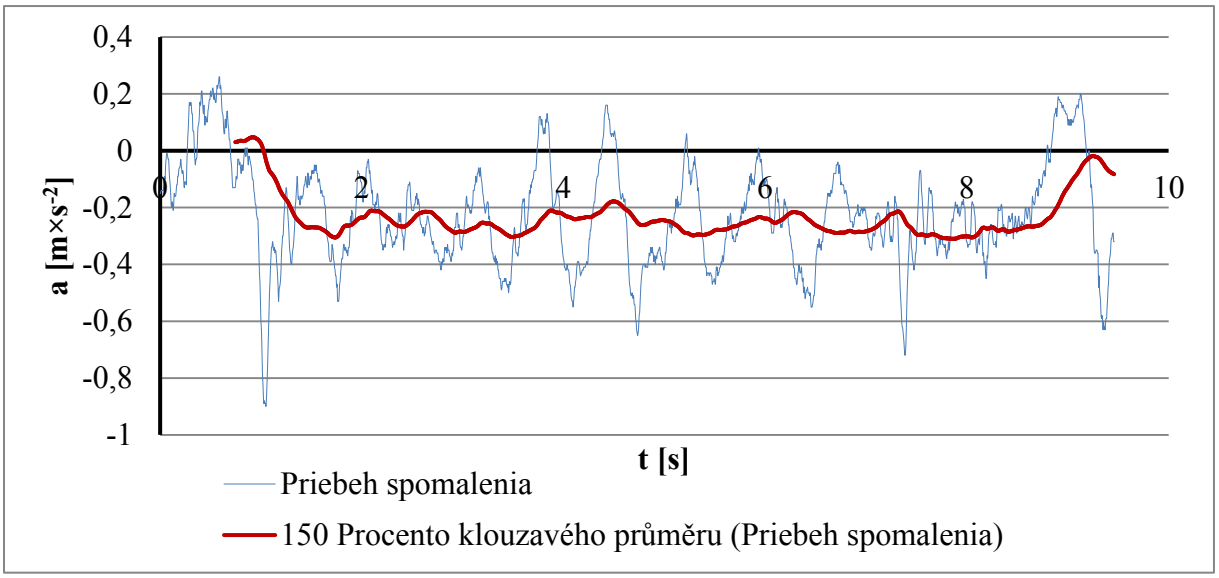
$v_0 := 45$ ***kph***

$t := 26.525$ ***s***

$v := v_0 - a \cdot t = 26$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 259.8$ ***m***

8 prevodový stupeň



Obr. č. 66 – Spomalenie brzdením motora pri zaradenom 8 prevodovom stupni

$a_{pr} = 0{,}222\ \mathrm{m/s^2}$; $a_{max} = 0{,}90\ \mathrm{m/s^2}$

$v_0 := 30\ \textbf{\textit{kph}}$

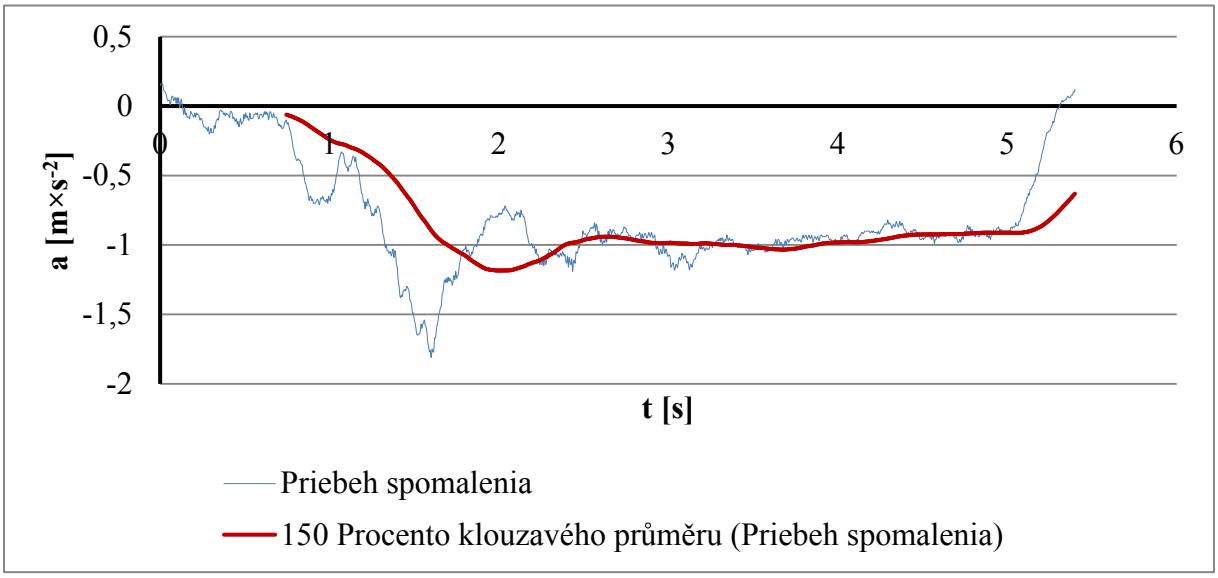
$t := 9.46\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 22\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 68.9\ \textbf{\textit{m}}$

3.1.2 Motorová brzda

4 prevodový stupeň



Obr. č. 67 – Spomalenie motorovou brzdou pri zaradenom 4 prevodovom stupni

$a_{pr} = 0{,}783\ \mathrm{m/s^2}$; $a_{max} = 1{,}81\ \mathrm{m/s^2}$

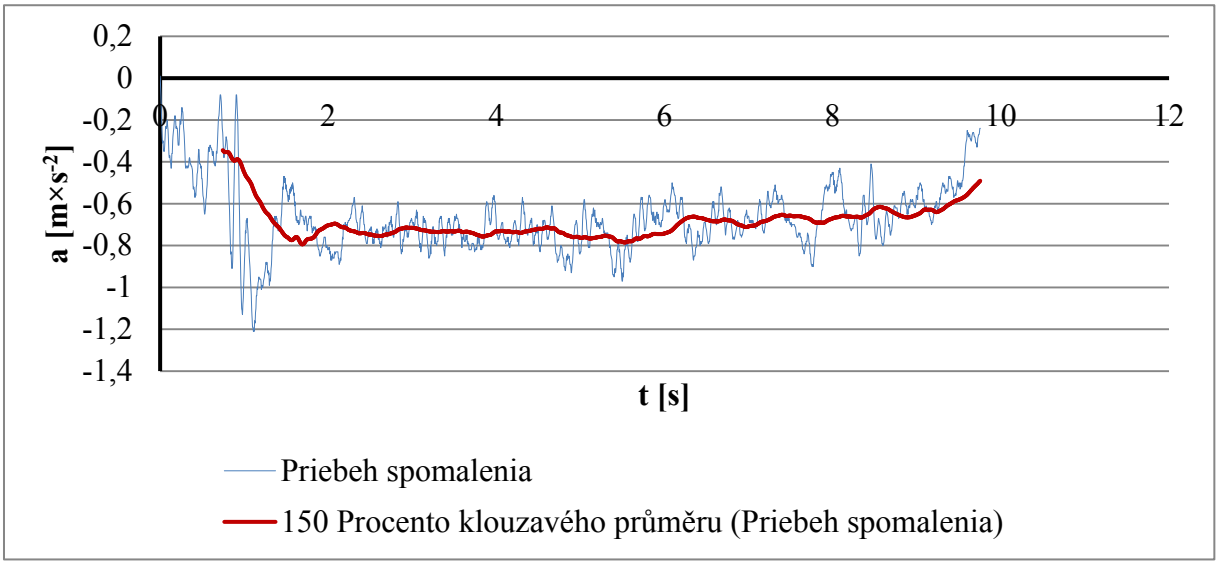
$v_0 := 25\ \textbf{\textit{kph}}$

$t := 5.4\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 10\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 26.1\ \textbf{\textit{m}}$

6 prevodový stupeň (1. meranie)



Obr. č. 68 – Spomalenie motorovou brzdou pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}665\ \mathrm{m/s^2}$; $a_{max} = 1{,}21\ \mathrm{m/s^2}$

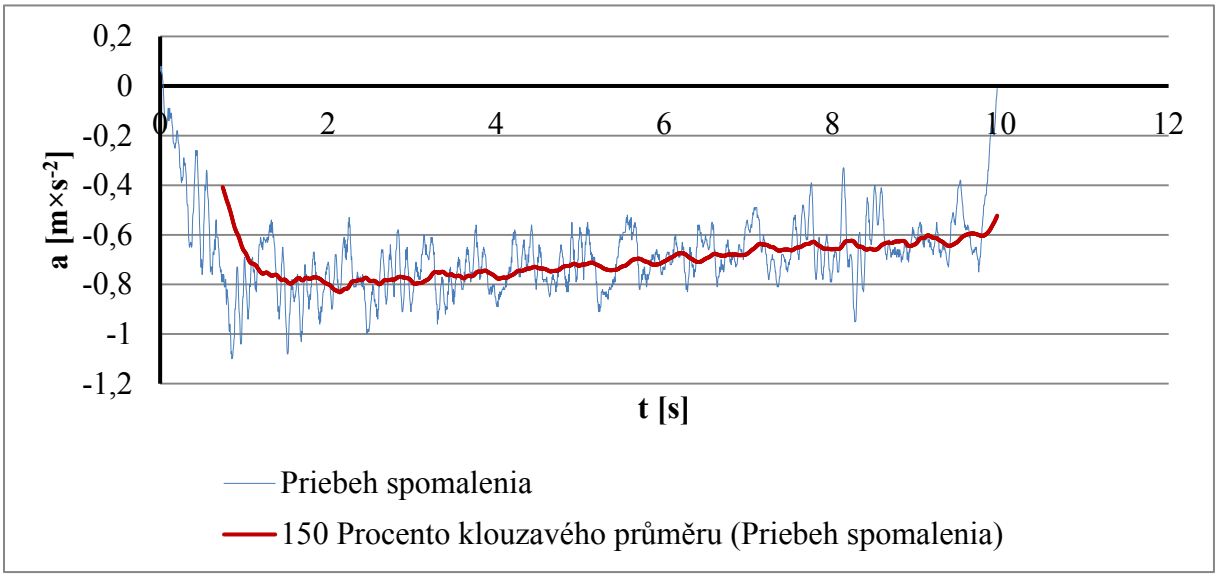
$v_0 := 45\ \ \boldsymbol{kph}$

$t := 9.755\ \ \boldsymbol{s}$

$v := v_0 - a \cdot t = 22\ \ \boldsymbol{kph}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 90.3\ \ \boldsymbol{m}$

6 prevodový stupeň (2. meranie)



Obr. č. 69 – Spomalenie motorovou brzdou pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}679\ \mathrm{m/s^2}$; $a_{max} = 1{,}10\ \mathrm{m/s^2}$

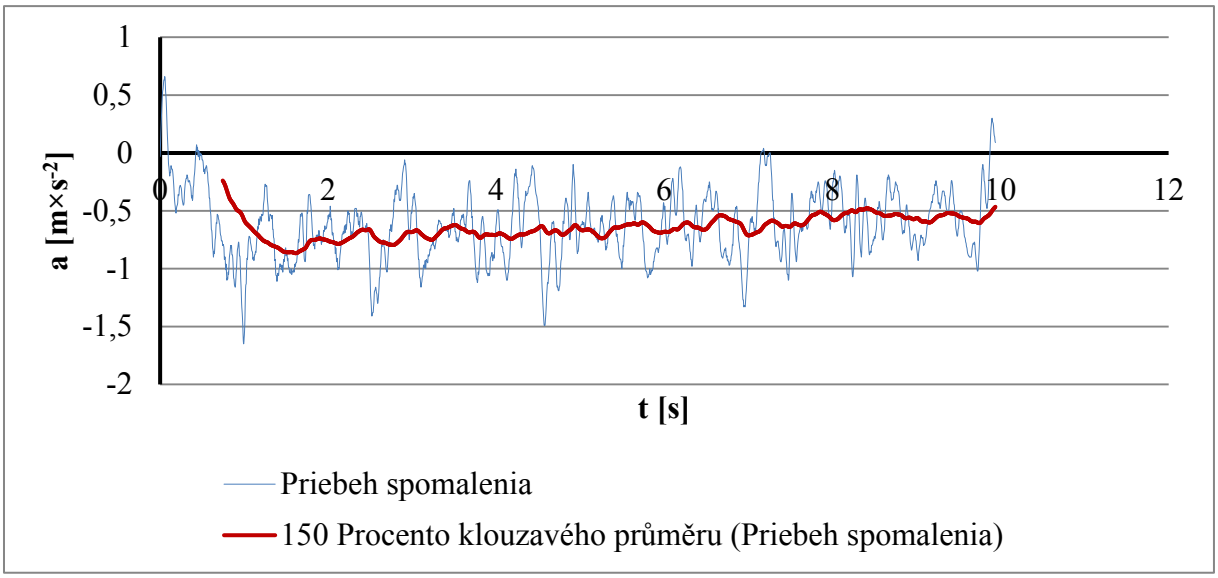
$v_0 := 45\ \textbf{\textit{kph}}$

$t := 9.96\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 21\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 90.8\ \textbf{\textit{m}}$

8 prevodový stupeň



Obr. č. 70 – Spomalenie motorovou brzdou pri zaradenom 8 prevodovom stupni

$a_{pr} = 0{,}617\ \mathrm{m/s^2}$; $a_{max} = 1{,}65\ \mathrm{m/s^2}$

$v_0 := 46\ \textbf{\textit{kph}}$

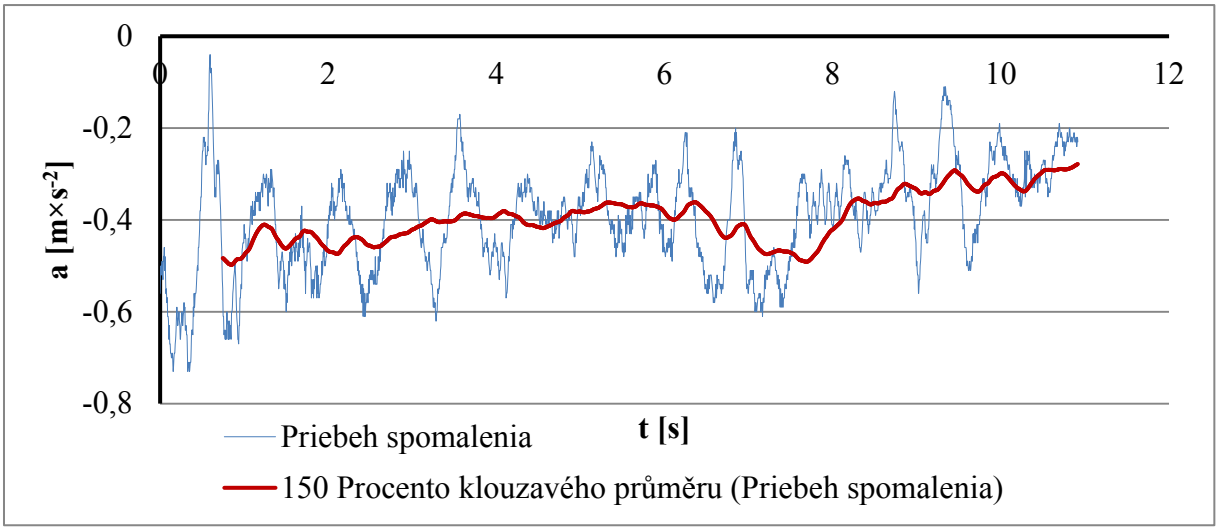
$t := 9.94\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 24\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 96.5\ \textbf{\textit{m}}$

3.1.3 1. Stupeň retardéra

4 prevodový stupeň



Obr. č. 71 – Spomalenie 1. stupňom retardéra pri zaradenom 4 prevodovom stupni

$a_{pr} = 0{,}395\ \mathrm{m/s^2}$; $a_{max} = 0{,}73\ \mathrm{m/s^2}$

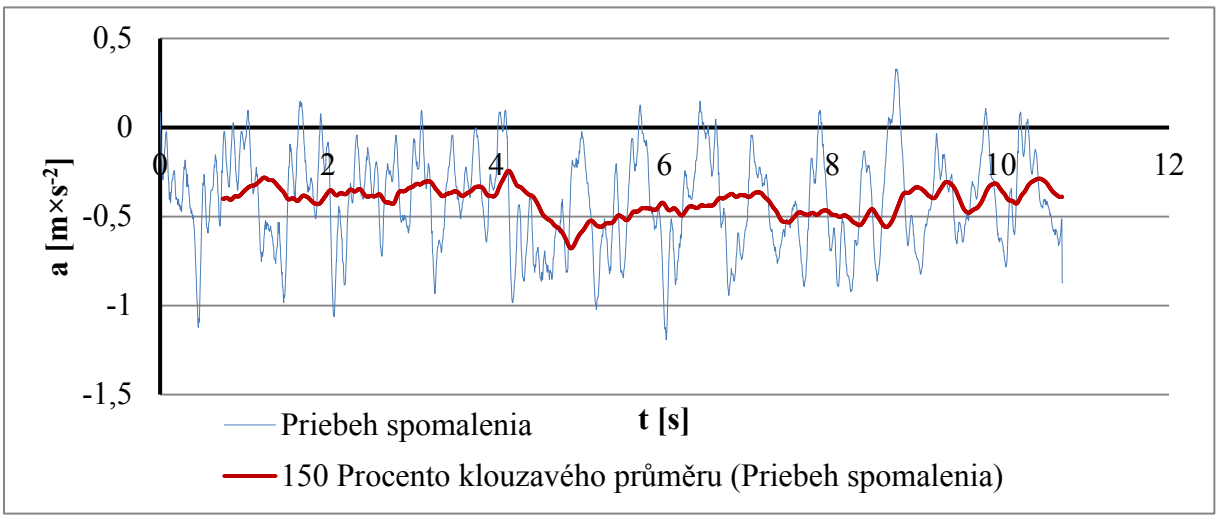
$v_0 := 25\ \ kph$

$t := 10.915\ \ s$

$v := v_0 - a \cdot t = 9\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 52.3\ \ m$

5 prevodový stupeň



Obr. č. 72 – Spomalenie 1. stupňom retardéra pri zaradenom 5 prevodovom stupni

$a_{pr} = 0{,}413\ \mathrm{m/s^2}$; $a_{max} = 1{,}19\ \mathrm{m/s^2}$

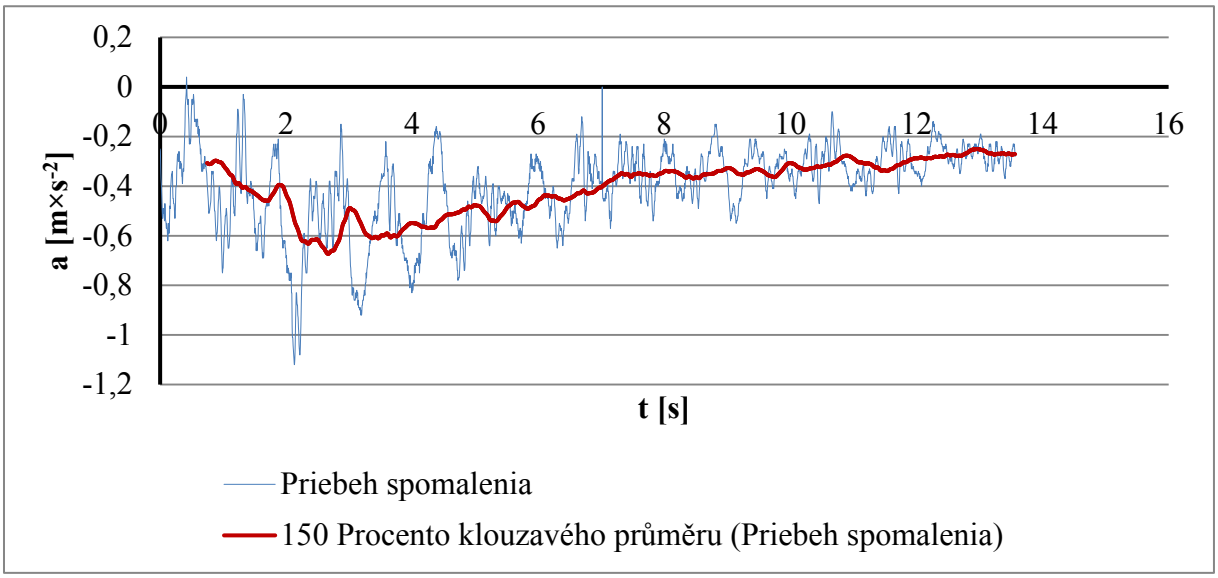
$v_0 := 30\ \textbf{\textit{kph}}$

$t := 10.73\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 14\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 65.6\ \textbf{\textit{m}}$

6 prevodový stupeň (1. meranie)



Obr. č. 73 – Spomalenie 1. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}402\ \mathrm{m/s^2}$; $a_{max} = 1{,}12\ \mathrm{m/s^2}$

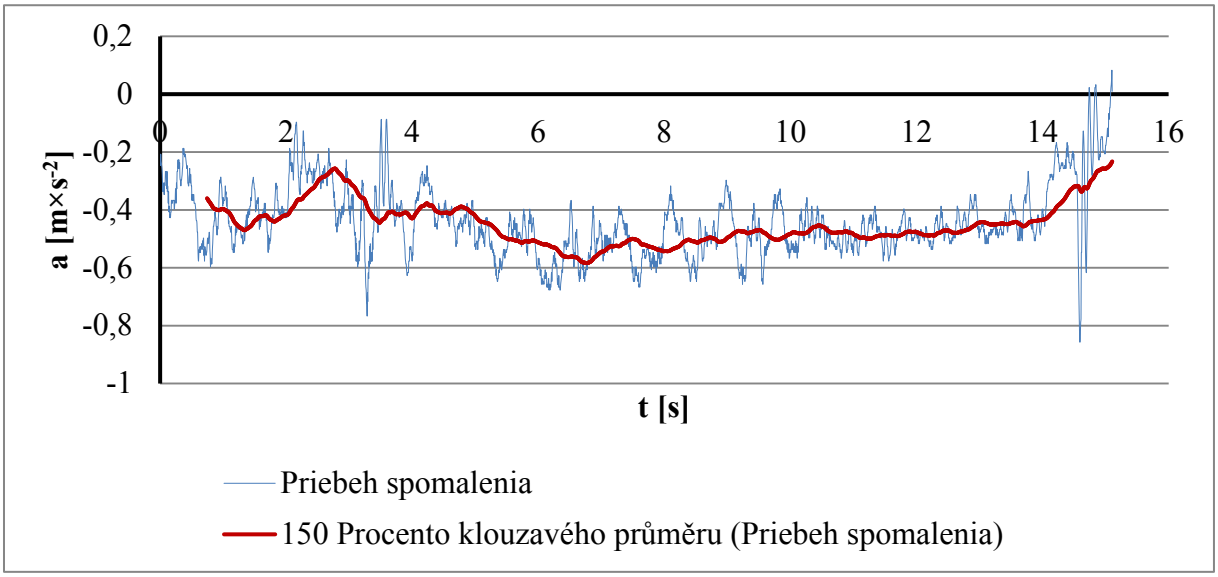
$v_0 := 45\ \textbf{\textit{kph}}$

$t := 13.565\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 25\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 132.6\ \textbf{\textit{m}}$

6 prevodový stupeň (2. meranie)



Obr. č. 74 – Spomalenie 1. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}440\ \mathrm{m/s^2}$; $a_{max} = 0{,}86\ \mathrm{m/s^2}$

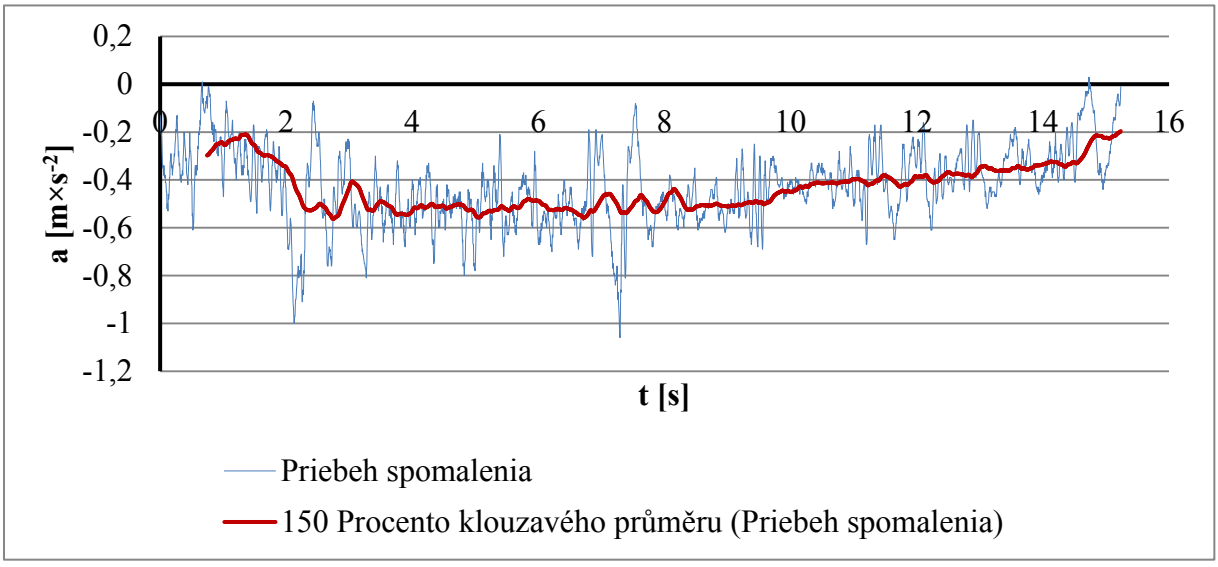
$v_0 := 40$ ***kph***

$t := 15.105$ ***s***

$v := v_0 - a \cdot t = 16$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 117.6$ ***m***

8 prevodový stupeň



Obr. č. 75 – Spomalenie 1. stupňom retardéra pri zaradenom 8 prevodovom stupni

$a_{pr} = 0{,}424\ \mathrm{m/s^2}$; $a_{max} = 1{,}06\ \mathrm{m/s^2}$

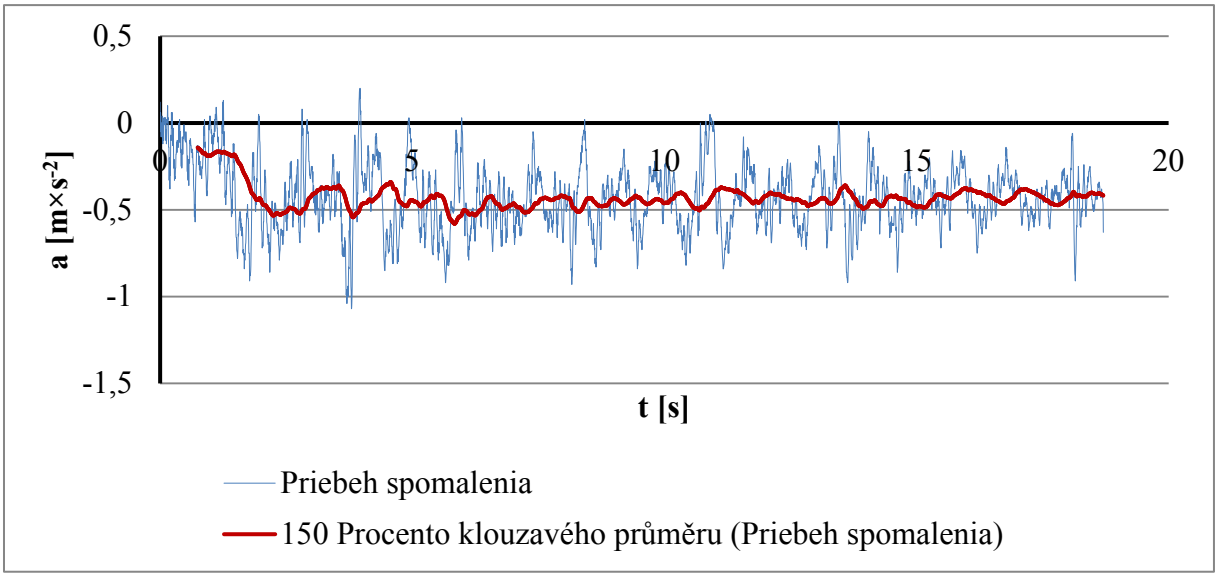
$v_0 := 53\ \textbf{\textit{kph}}$

$t := 15.235\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 30\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 175.1\ \textbf{\textit{m}}$

12 prevodový stupeň



Obr. č. 76 – Spomalenie 1. stupňom retardéra pri zaradenom 12 prevodovom stupni

$a_{pr} = 0{,}424\ \mathrm{m/s^2}$; $a_{max} = 1{,}07\ \mathrm{m/s^2}$

$v_0 := 82\ \textbf{\textit{kph}}$

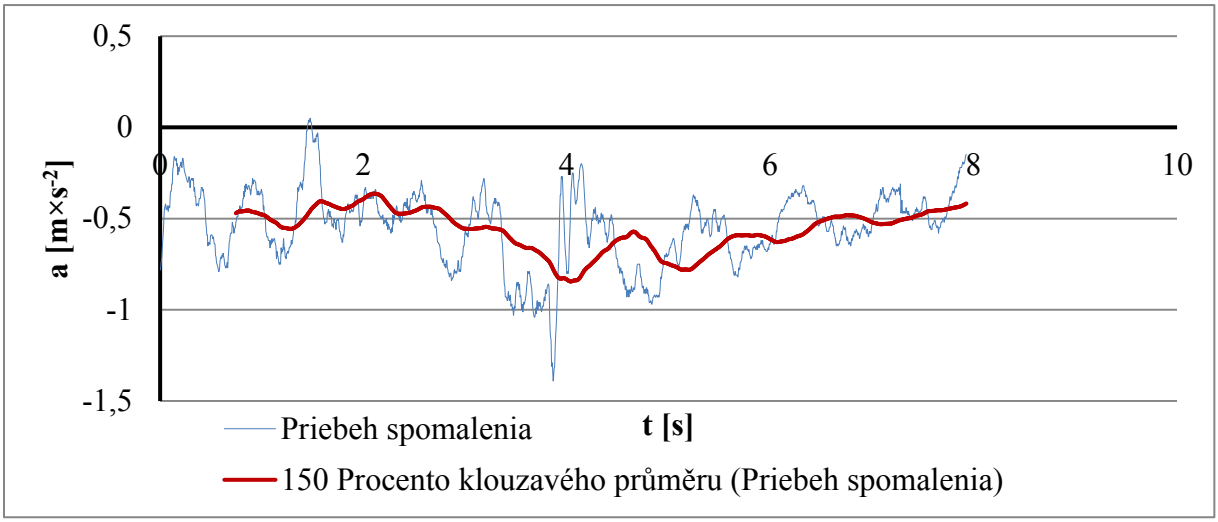
$t := 18.705\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 53\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 351.9\ \textbf{\textit{m}}$

3.1.4 2. Stupeň retardéra

5 prevodový stupeň



Obr. č. 77 – Spomalenie 2. stupňom retardéra pri zaradenom 5 prevodovom stupni

$a_{pr} = 0{,}546\ \mathrm{m/s^2}$; $a_{max} = 1{,}39\ \mathrm{m/s^2}$

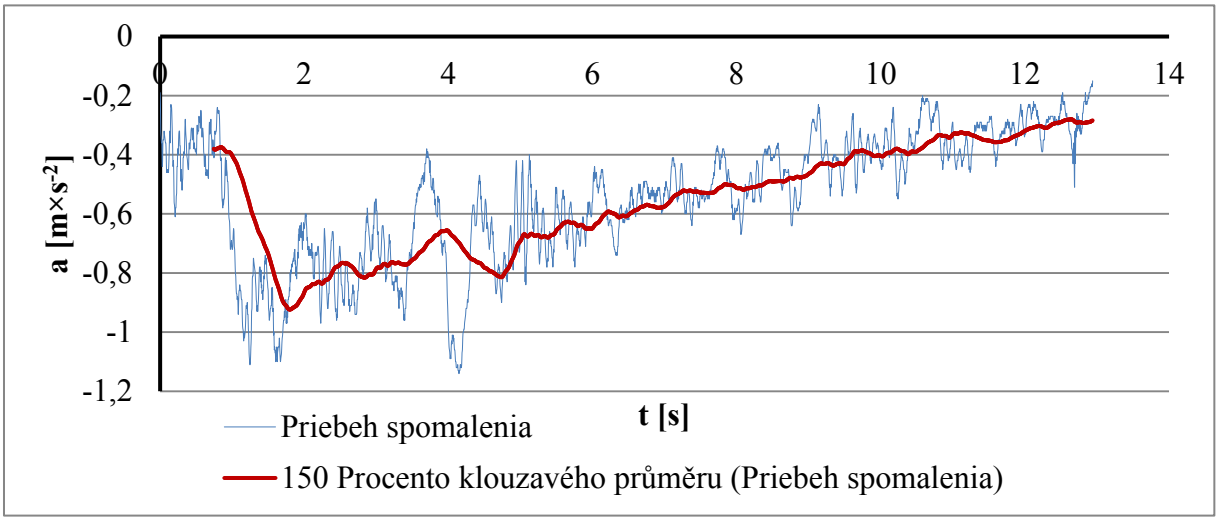
$v_0 := 30$ ***kph***

$t := 7.93$ ***s***

$v := v_0 - a \cdot t = 14$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 48.9$ ***m***

6 prevodový stupeň (1. meranie)



Obr. č. 78 – Spomalenie 2. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}543\ \mathrm{m/s^2}$; $a_{max} = 1{,}14\ \mathrm{m/s^2}$

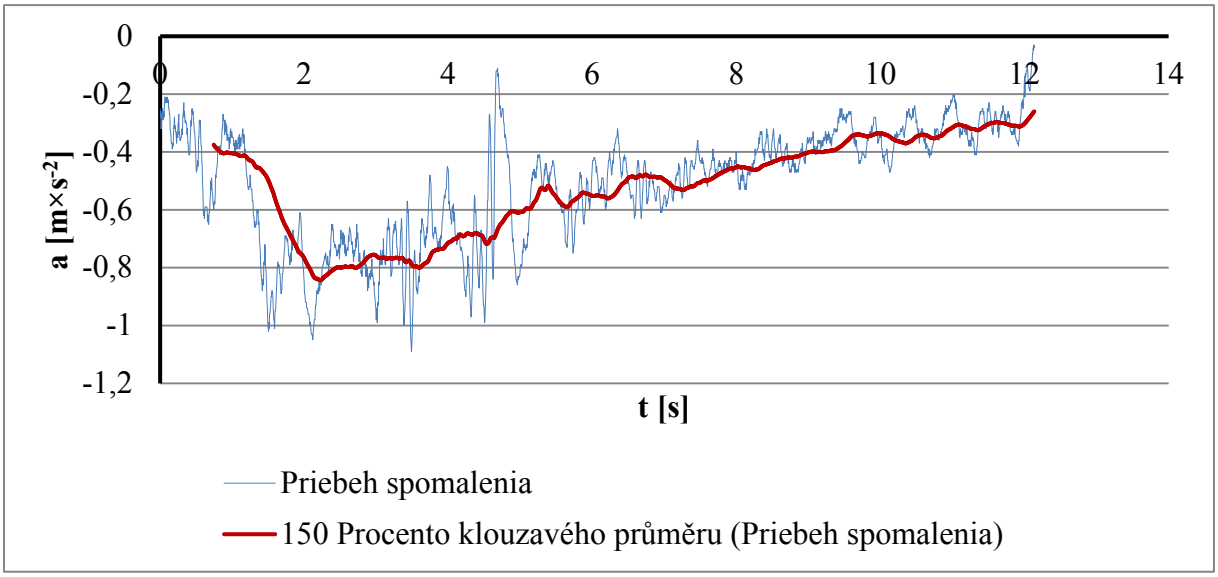
$v_0 := 45$ ***kph***

$t := 12.94$ ***s***

$v := v_0 - a \cdot t = 20$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 116.3$ ***m***

6 prevodový stupeň (2. meranie)



Obr. č. 79 – Spomalenie 2. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}508\ \mathrm{m/s^2}$; $a_{max} = 1{,}09\ \mathrm{m/s^2}$

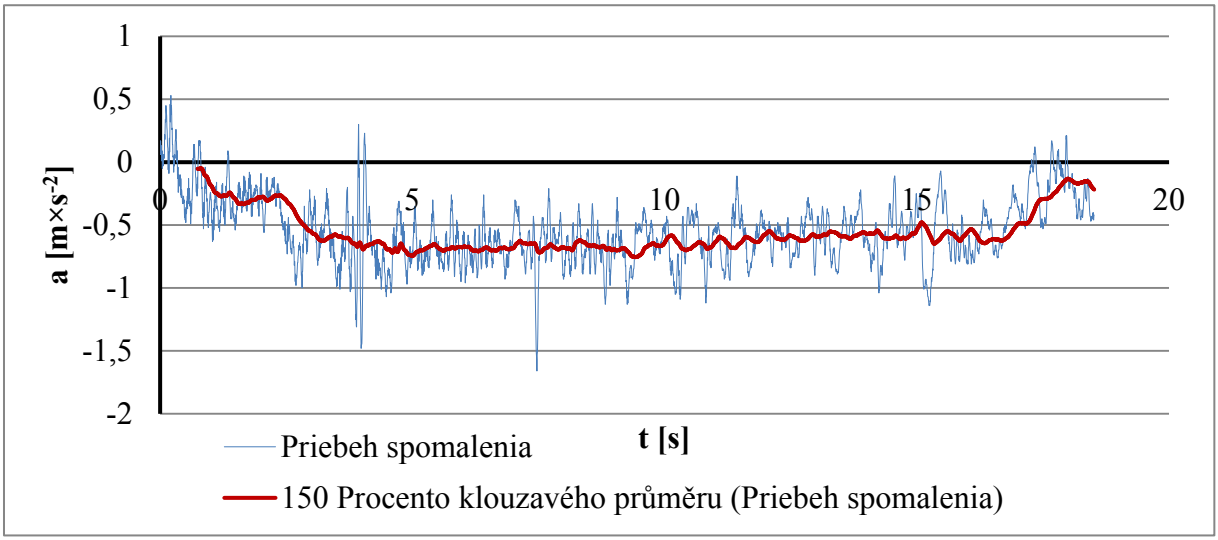
$v_0 := 35$ ***kph***

$t := 12.135$ ***s***

$v := v_0 - a \cdot t = 13$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 80.6$ ***m***

12 prevodový stupeň



Obr. č. 80 – Spomalenie 2. stupňom retardéra pri zaradenom 12 prevodovom stupni

$a_{pr} = 0{,}544\ \mathrm{m/s^2}$; $a_{max} = 1{,}66\ \mathrm{m/s^2}$

$v_0 := 92$ ***kph***

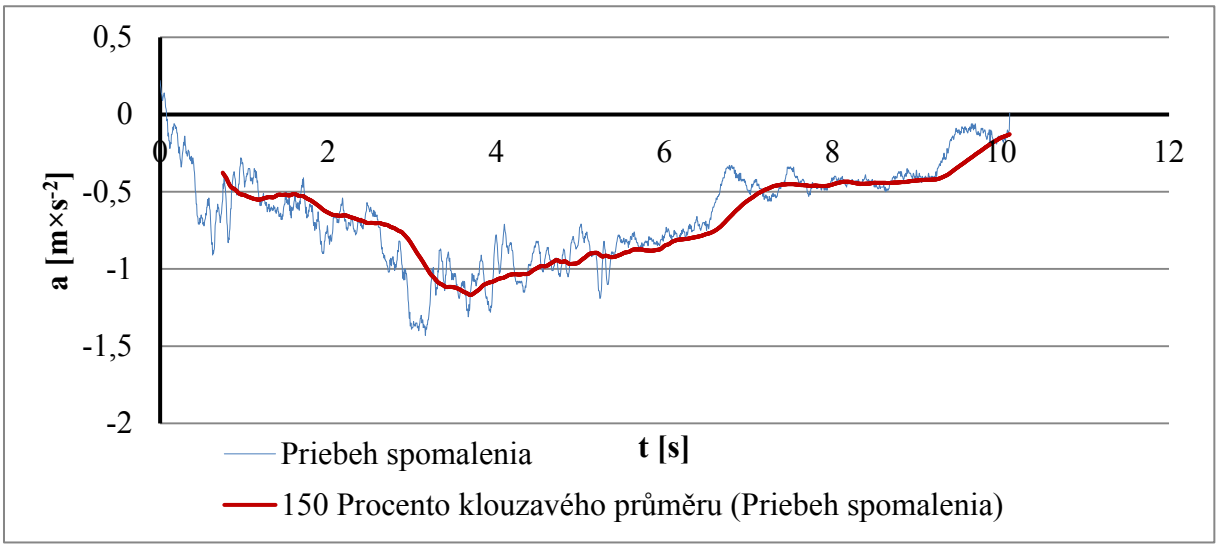
$t := 18.515$ ***s***

$v := v_0 - a \cdot t = 56$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 379.9$ ***m***

3.1.5 3. Stupeň retardéra

5 prevodový stupeň



Obr. č. 81 – Spomalenie 3. stupňom retardéra pri zaradenom 5 prevodovom stupni

$a_{pr} = 0{,}639\ \mathrm{m/s^2}$; $a_{max} = 1{,}43\ \mathrm{m/s^2}$

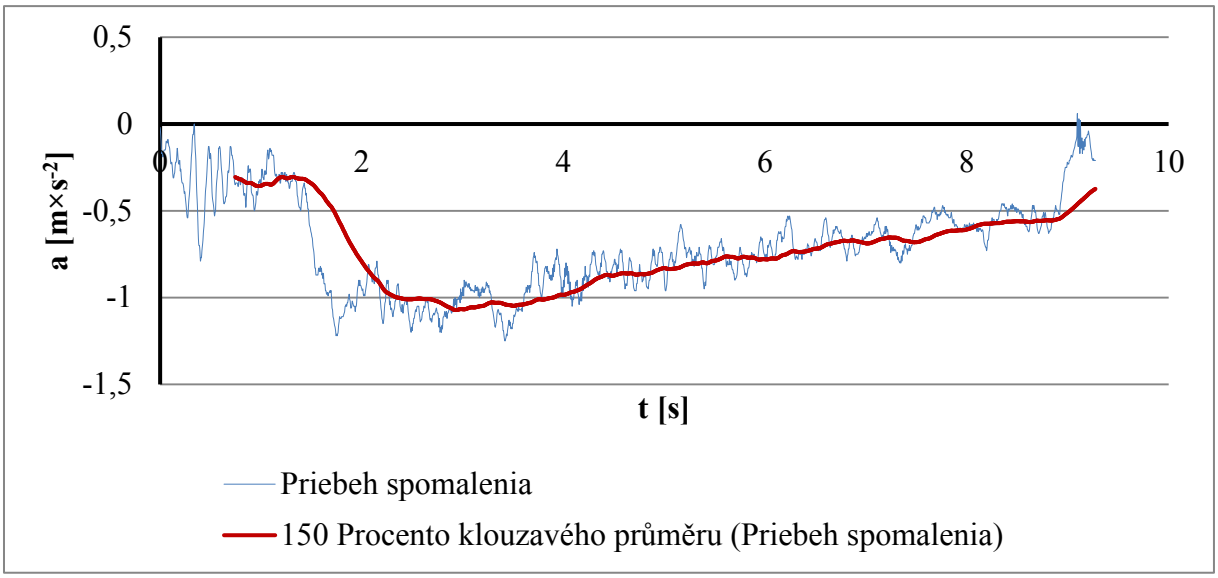
$v_0 := 30\ \textbf{\textit{kph}}$

$t := 10.105\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 7\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 51.6\ \textbf{\textit{m}}$

6 prevodový stupeň



Obr. č. 82 – Spomalenie 3. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}699\ \mathrm{m/s^2}$; $a_{max} = 1{,}25\ \mathrm{m/s^2}$

$v_0 := 45\ \textbf{\textit{kph}}$

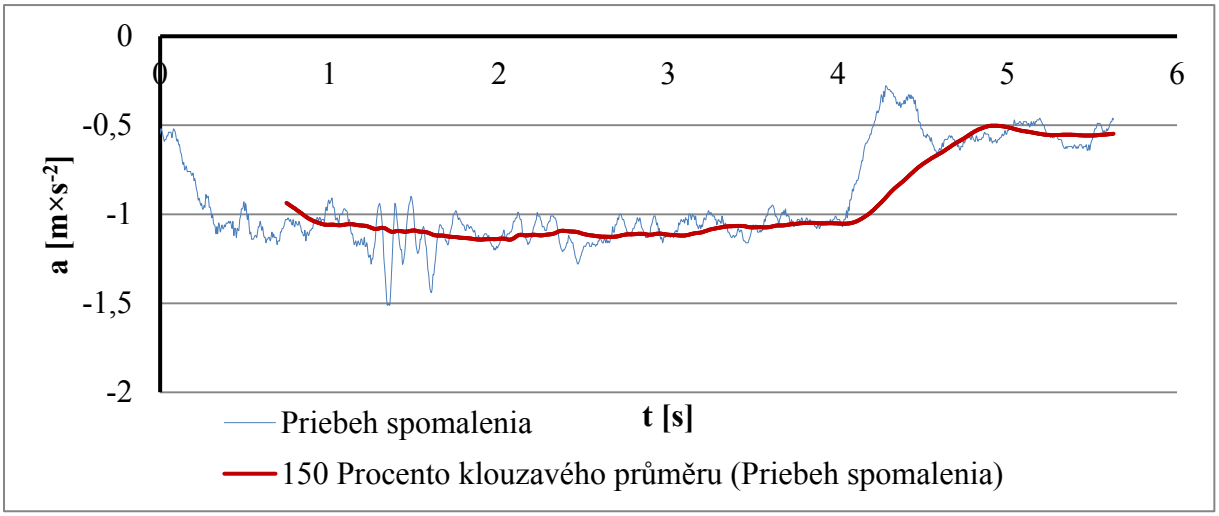
$t := 9.275\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 22\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 85.9\ \textbf{\textit{m}}$

3.1.6 4. Stupeň retardéra

5 prevodový stupeň



Obr. č. 83 – Spomalenie 4. stupňom retardéra pri zaradenom 5 prevodovom stupni

$a_{pr} = 0{,}917\ \mathrm{m/s^2}$; $a_{max} = 1{,}51\ \mathrm{m/s^2}$

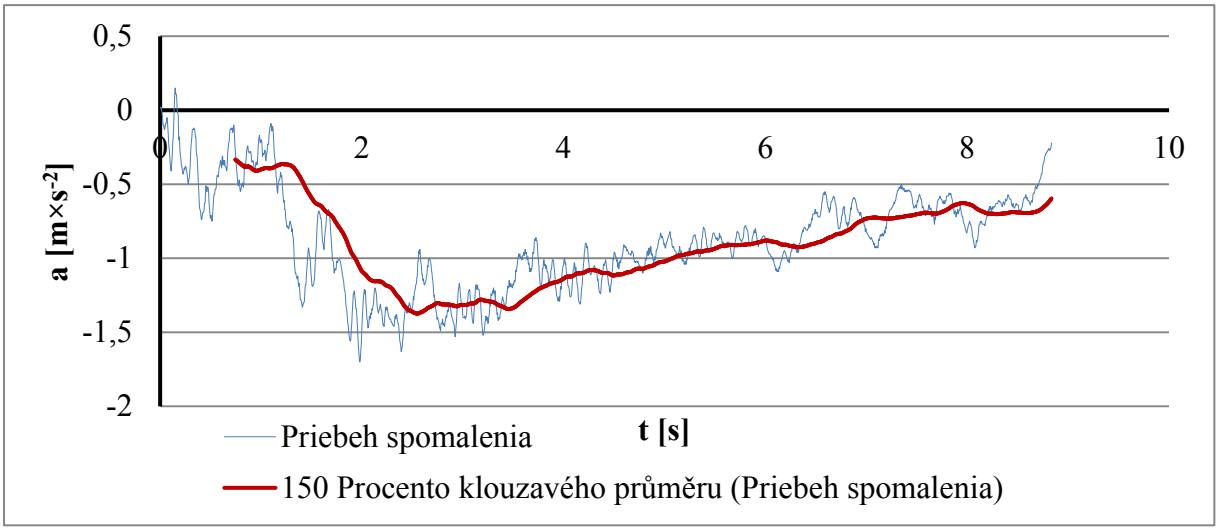
$v_0 := 30\ \ kph$

$t := 5.625\ \ s$

$v := v_0 - a \cdot t = 11\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 32.4\ \ m$

6 prevodový stupeň



Obr. č. 84 – Spomalenie 4. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}871\ \mathrm{m/s^2}$; $a_{max} = 1{,}70\ \mathrm{m/s^2}$

$v_0 := 45\ \textbf{\textit{kph}}$

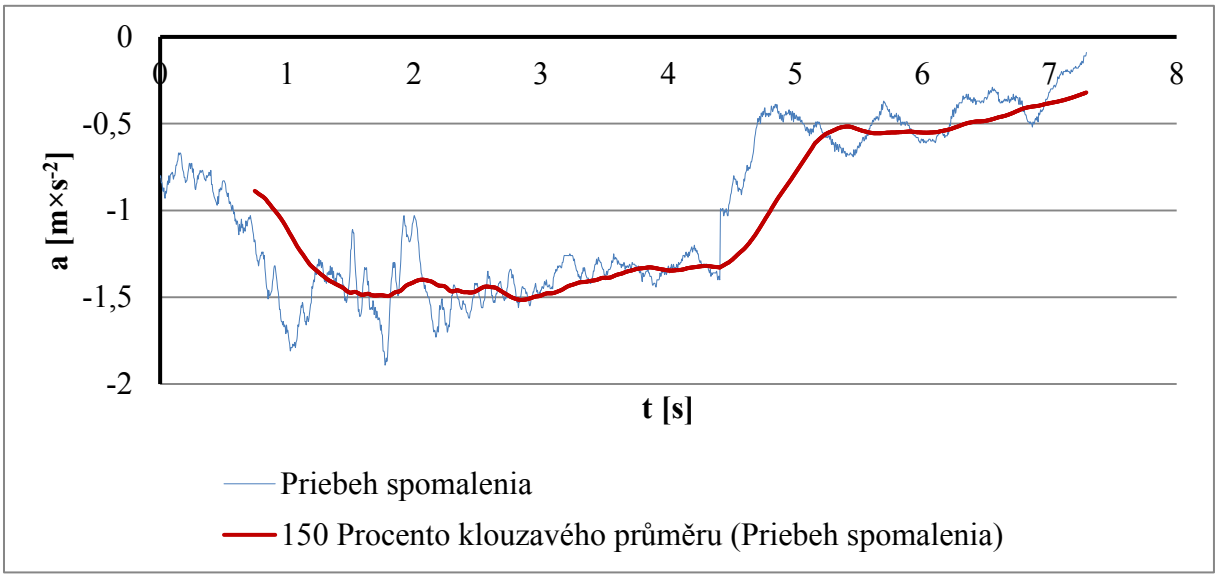
$t := 8.835\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 17\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 76.4\ \textbf{\textit{m}}$

3.1.7 5. Stupeň retardéra

5 prevodový stupeň



Obr. č. 85 – Spomalenie 5. stupňom retardéra pri zaradenom 5 prevodovom stupni

$a_{pr} = 0{,}995\ \mathrm{m/s^2}$; $a_{max} = 1{,}89\ \mathrm{m/s^2}$

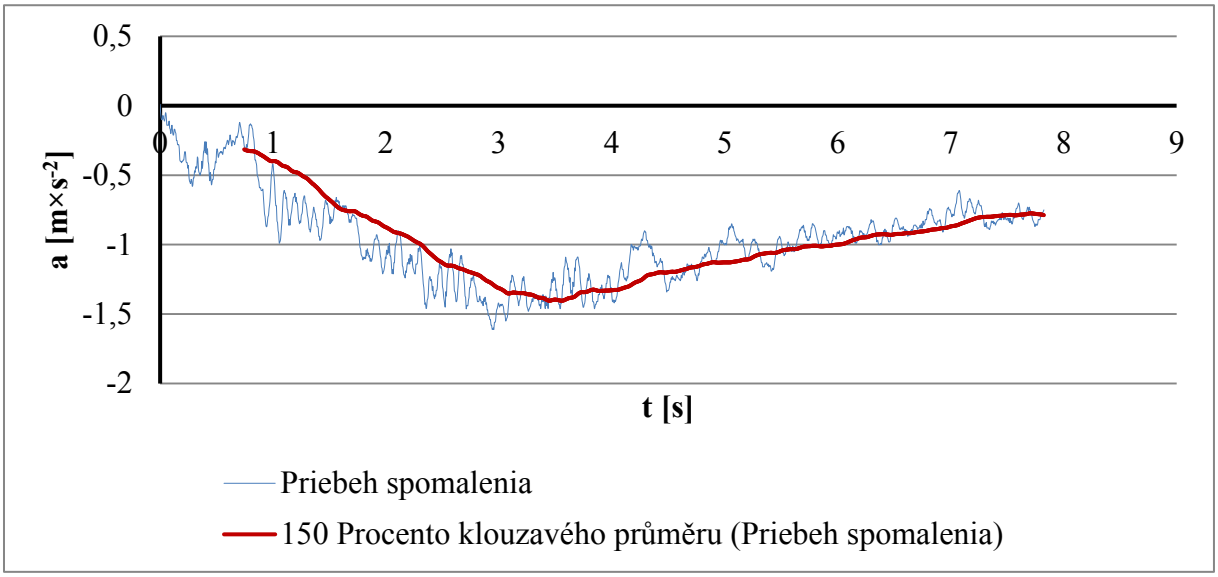
$v_0 := 30\ \textbf{\textit{kph}}$

$t := 7.29\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 4\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 34.3\ \textbf{\textit{m}}$

6 prevodový stupeň



Obr. č. 86 – Spomalenie 5. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}953\ \mathrm{m/s^2}$; $a_{max} = 1{,}61\ \mathrm{m/s^2}$

$v_0 := 45\ \ kph$

$t := 7.825\ \ s$

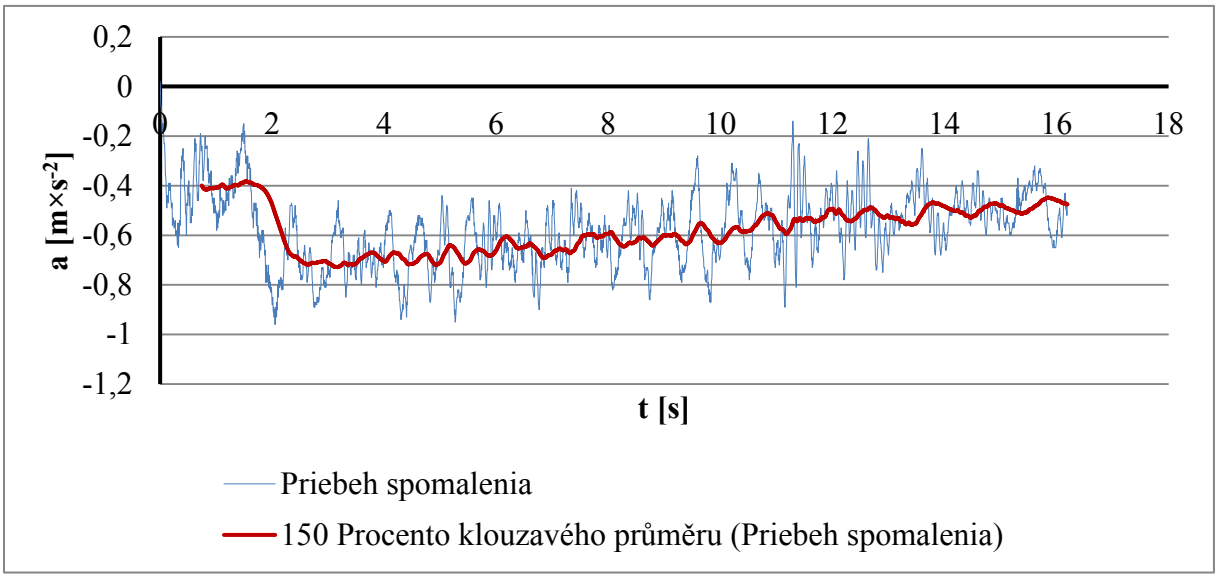
$v := v_0 - a \cdot t = 18\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 68.6\ \ m$

3.2 PRIEBEH SPOMALENIA PRÁZDNEHO NÁKLADNÉHO VOZIDLA

3.2.1 Brzdenie motorom

6 prevodový stupeň



Obr. č. 87 – Spomalenie brzdením motora pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}574\ \mathrm{m/s^2}$; $a_{max} = 0{,}96\ \mathrm{m/s^2}$

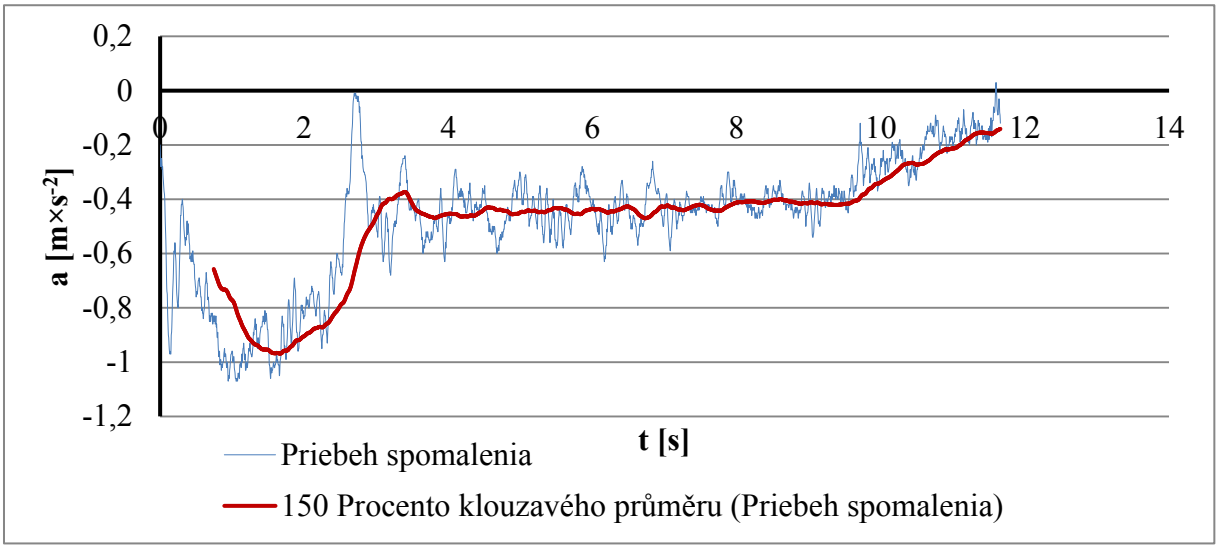
$v_0 := 45\ \ kph$

$t := 16.195\ \ s$

$v := v_0 - a \cdot t = 12\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 127.2\ \ m$

8 prevodový stupeň



Obr. č. 88 – Spomalenie brzdením motora pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}472\ \mathrm{m/s^2}$; $a_{max} = 1{,}07\ \mathrm{m/s^2}$

$v_0 := 30$ ***kph***

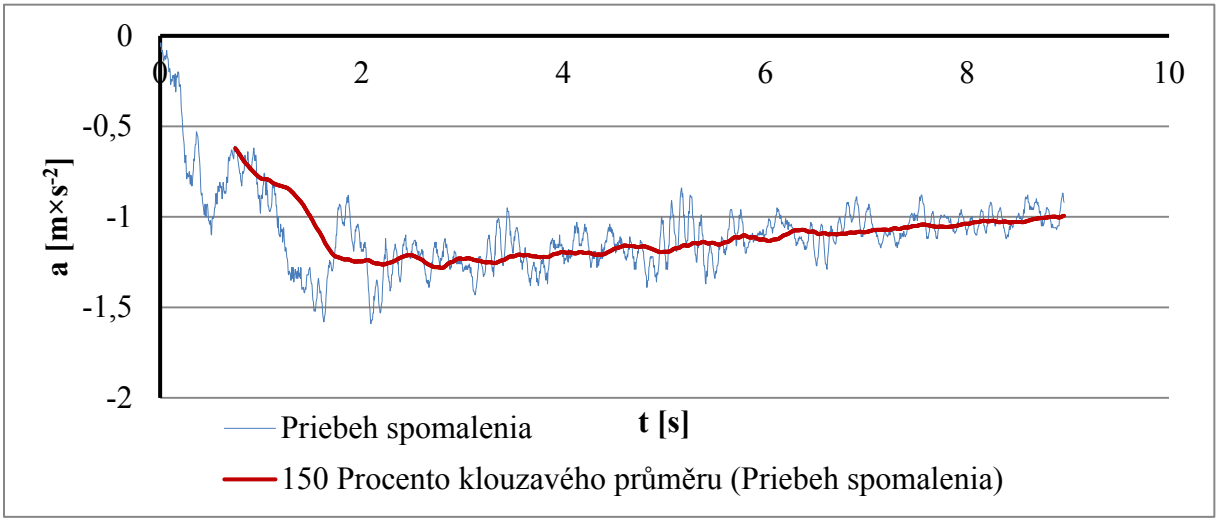
$t := 11.66$ ***s***

$v := v_0 - a \cdot t = 10$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 65.1$ ***m***

3.2.2 Motorová brzda

6 prevodový stupeň



Obr. č. 89 – Spomalenie motorovou brzdou pri zaradenom 6 prevodovom stupni

$a_{pr} = 1{,}081\ \mathrm{m/s^2}$; $a_{max} = 1{,}59\ \mathrm{m/s^2}$

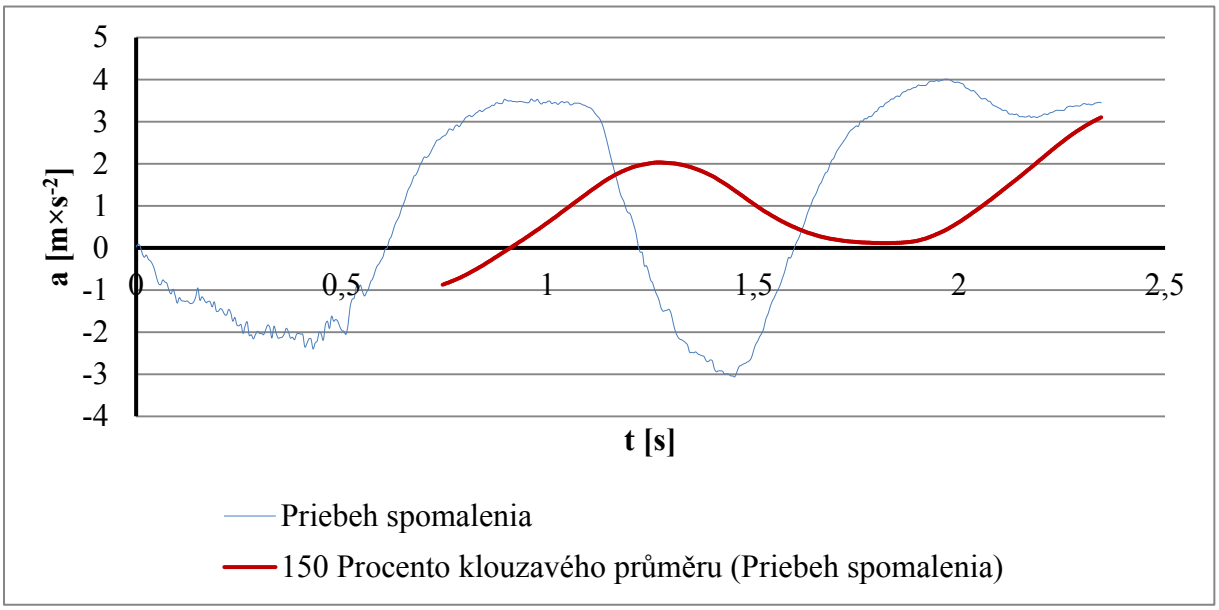
$v_0 := 45\ \textbf{\textit{kph}}$

$t := 8.96\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 10\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 68.6\ \textbf{\textit{m}}$

8 prevodový stupeň



Obr. č. 90 – Spomalenie motorovou brzdou pri zaradenom 6 prevodovom stupni

$a_{pr} = 1{,}004\ \mathrm{m/s^2}$; $a_{max} = 3{,}06\ \mathrm{m/s^2}$

$v_0 := 30\ \textbf{\textit{kph}}$

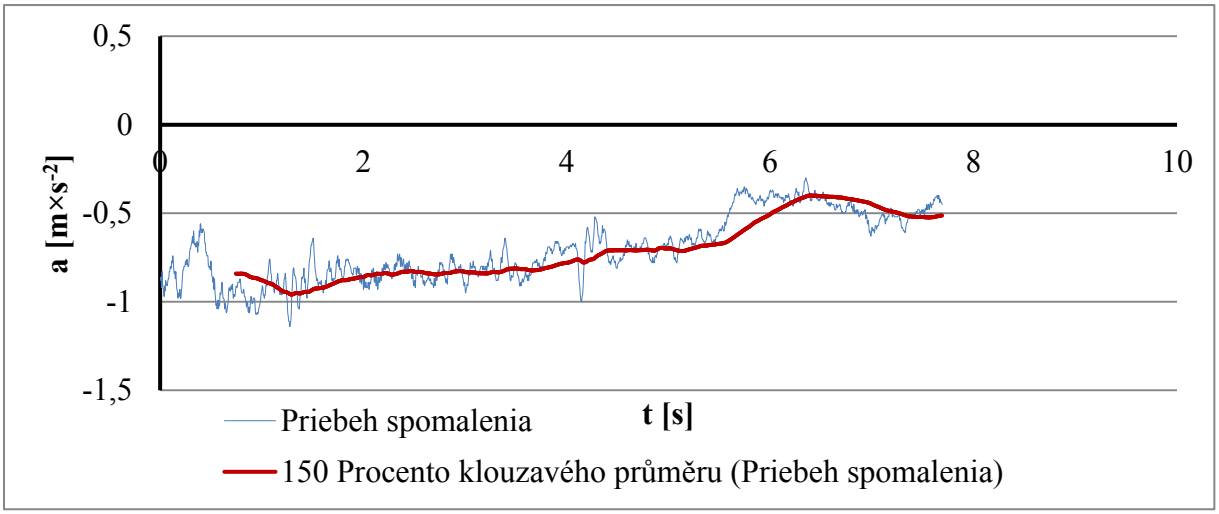
$t := 2.345\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 22\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 16.8\ \textbf{\textit{m}}$

3.2.3 1. Stupeň retardéra

5 prevodový stupeň



Obr. č. 91 – Spomalenie 1. stupňom retardéra pri zaradenom 5 prevodovom stupni

$a_{pr} = 0{,}704\ \mathrm{m/s^2}$; $a_{max} = 1{,}14\ \mathrm{m/s^2}$

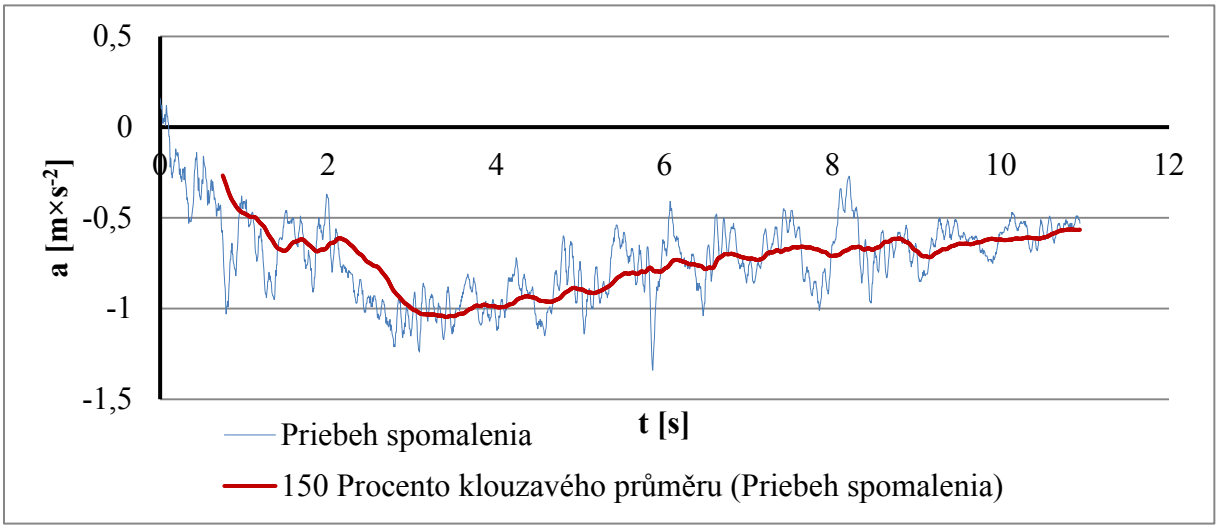
$v_0 := 30$ ***kph***

$t := 7.69$ ***s***

$v := v_0 - a \cdot t = 11$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 43.3$ ***m***

6 prevodový stupeň (1. meranie)



Obr. č. 92 – Spomalenie 1. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}719\ \mathrm{m/s^2}$; $a_{max} = 1{,}34\ \mathrm{m/s^2}$

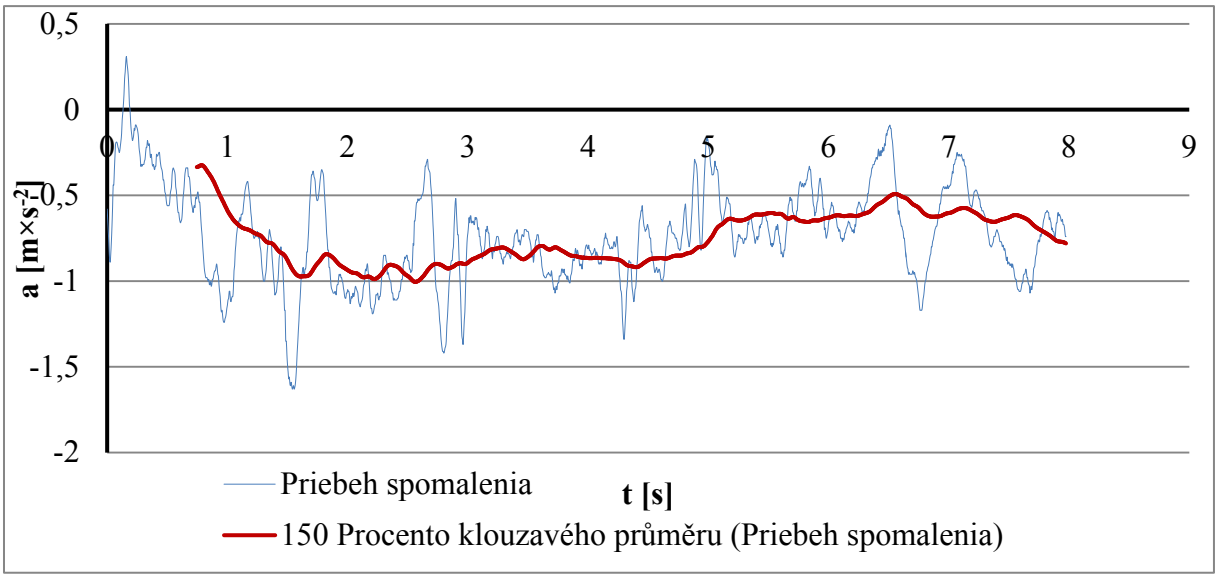
$v_0 := 43$ ***kph***

$t := 10.94$ ***s***

$v := v_0 - a \cdot t = 15$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 87.6$ ***m***

6 prevodový stupeň (2. meranie)



Obr. č. 93 – Spomalenie 1. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}731\ \mathrm{m/s^2}$; $a_{max} = 1{,}63\ \mathrm{m/s^2}$

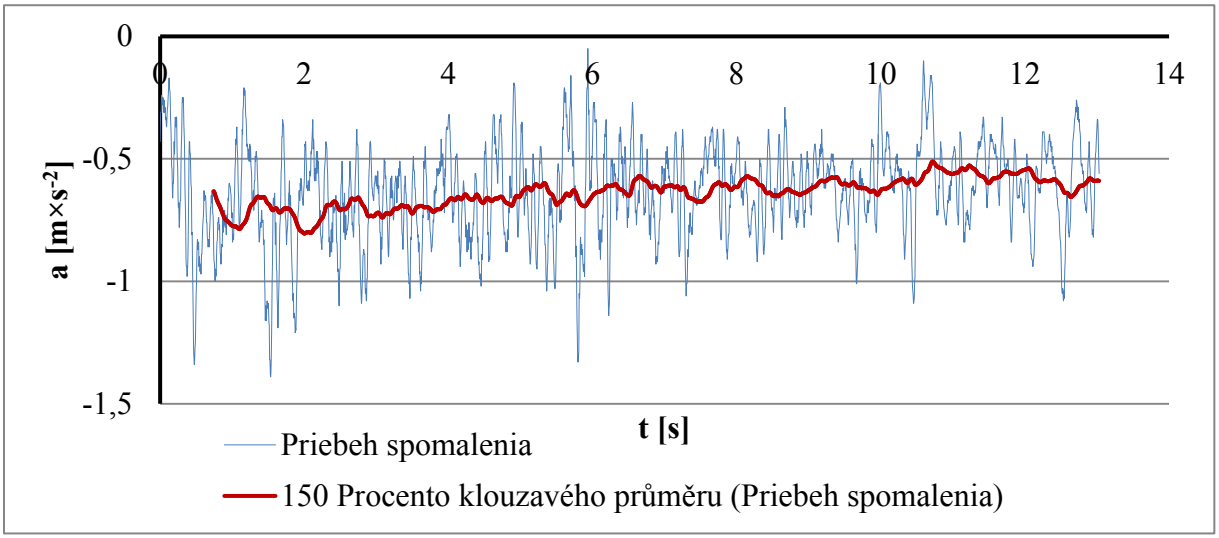
$v_0 := 40$ ***kph***

$t := 7.975$ ***s***

$v := v_0 - a \cdot t = 19$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 65.4$ ***m***

12 prevodový stupeň



Obr. č. 94 – Spomalenie 1. stupňom retardéra pri zaradenom 12 prevodovom stupni

$a_{pr} = 0{,}635\ \mathrm{m/s^2}$; $a_{max} = 1{,}39\ \mathrm{m/s^2}$

$v_0 := 80\ \ kph$

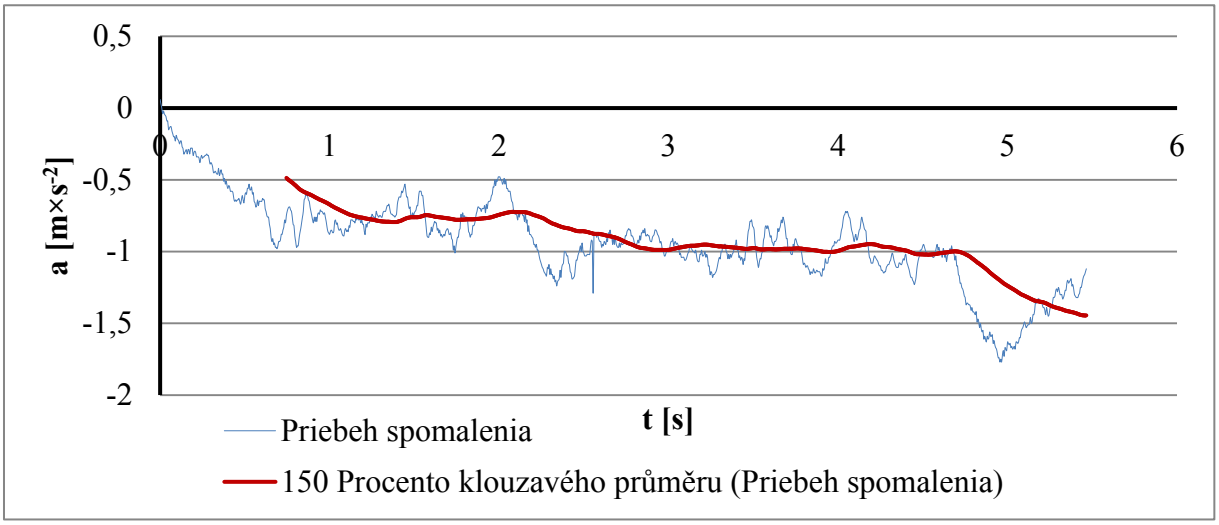
$t := 13.03\ \ s$

$v := v_0 - a \cdot t = 50\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 235.7\ \ m$

3.2.4 2. Stupeň retardéra

5 prevodový stupeň



Obr. č. 95 – Spomalenie 2. stupňom retardéra pri zaradenom 5 prevodovom stupni

$a_{pr} = 0{,}924\ \mathrm{m/s^2}$; $a_{max} = 1{,}77\ \mathrm{m/s^2}$

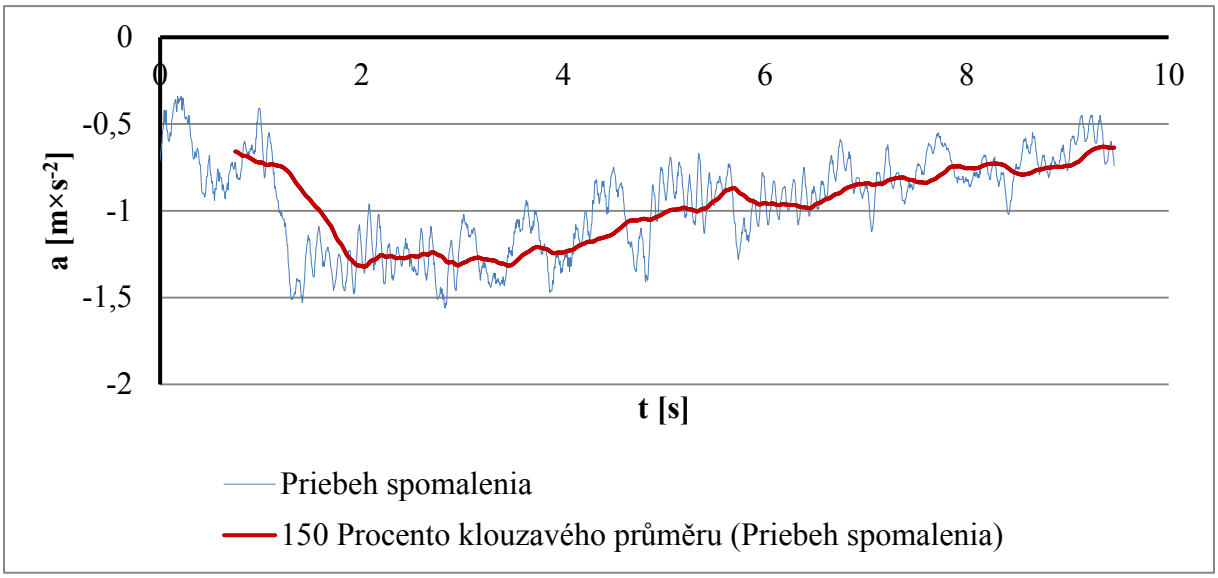
$v_0 := 30\ \textbf{\textit{kph}}$

$t := 5.465\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 12\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 31.7\ \textbf{\textit{m}}$

6 prevodový stupeň



Obr. č. 96 – Spomalenie 2. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 0{,}952\ \mathrm{m/s^2}$; $a_{max} = 1{,}56\ \mathrm{m/s^2}$

$v_0 := 45\ \textbf{\textit{kph}}$

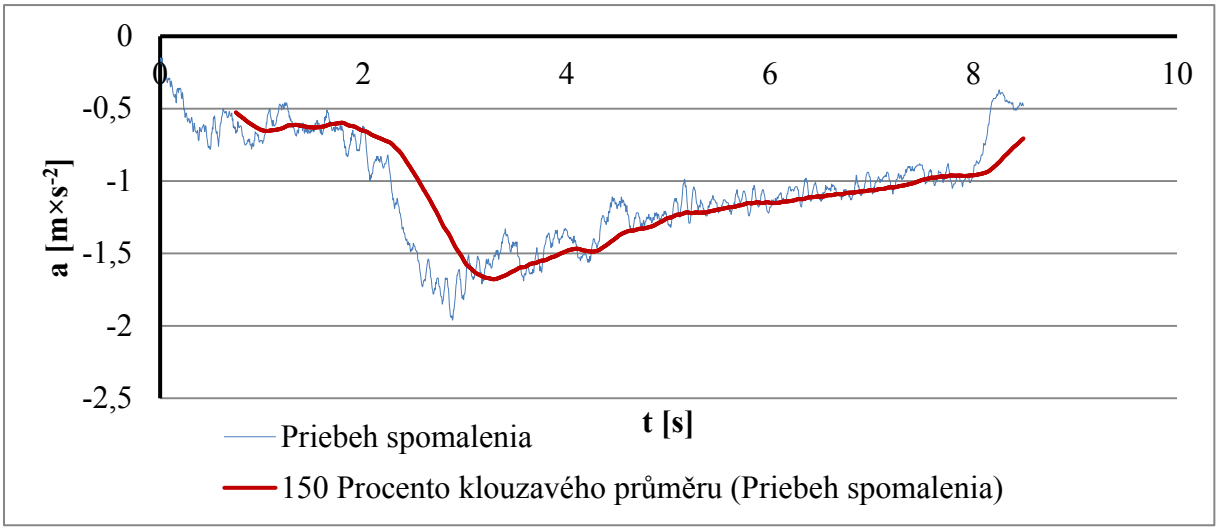
$t := 9.46\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 13\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 75.7\ \textbf{\textit{m}}$

3.2.5 3. Stupeň retardéra

6 prevodový stupeň (1. meranie)



Obr. č. 97 – Spomalenie 3. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 1{,}046\ \mathrm{m/s^2}$; $a_{max} = 1{,}96\ \mathrm{m/s^2}$

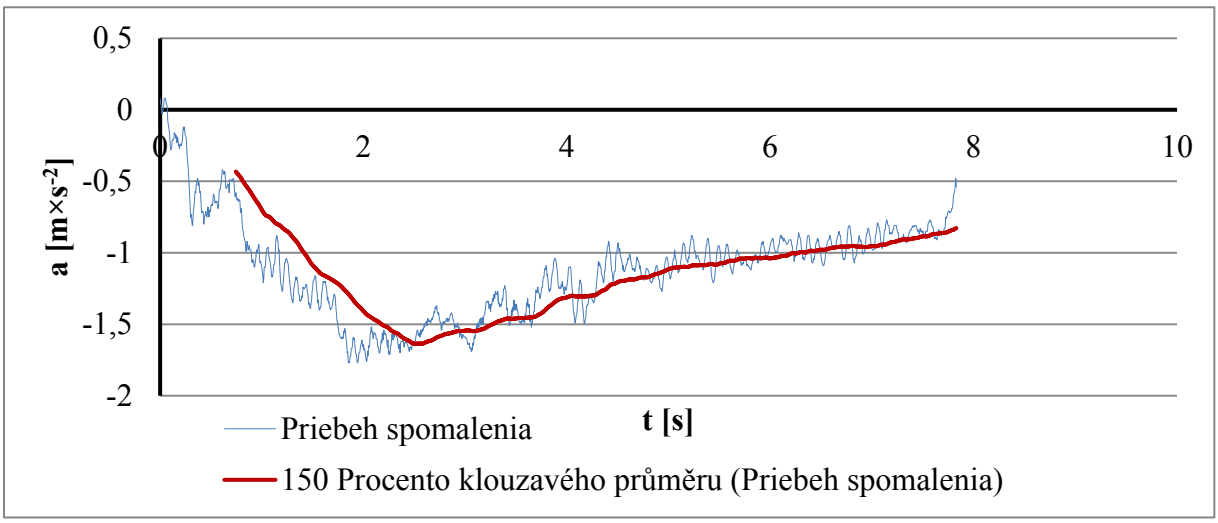
$v_0 := 45$ ***kph***

$t := 8.49$ ***s***

$v := v_0 - a \cdot t = 13$ ***kph***

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 68.4$ ***m***

6 prevodový stupeň (2. meranie)



Obr. č. 98 – Spomalenie 3. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 1{,}104\ \mathrm{m/s^2}$; $a_{max} = 1{,}77\ \mathrm{m/s^2}$

$v_0 := 45\ \textbf{\textit{kph}}$

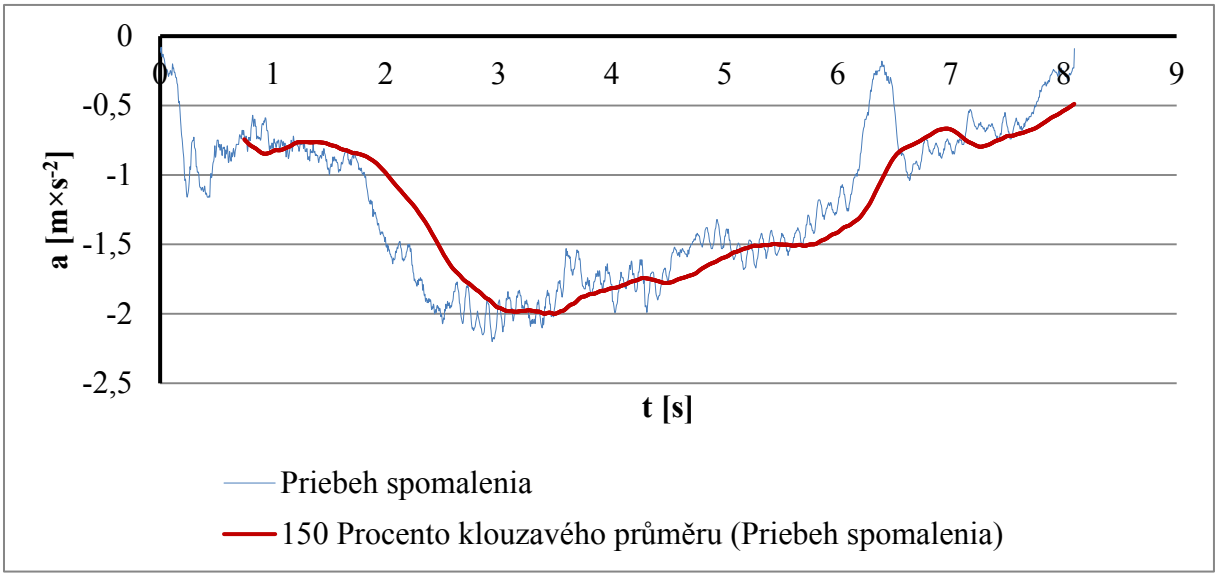
$t := 7.83\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 14\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 64\ \textbf{\textit{m}}$

3.2.6 4. Stupeň retardéra

6 prevodový stupeň



Obr. č. 99 – Spomalenie 4. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 1{,}213\ \mathrm{m/s^2}$; $a_{max} = 2{,}2\ \mathrm{m/s^2}$

$v_0 := 45\ \textbf{\textit{kph}}$

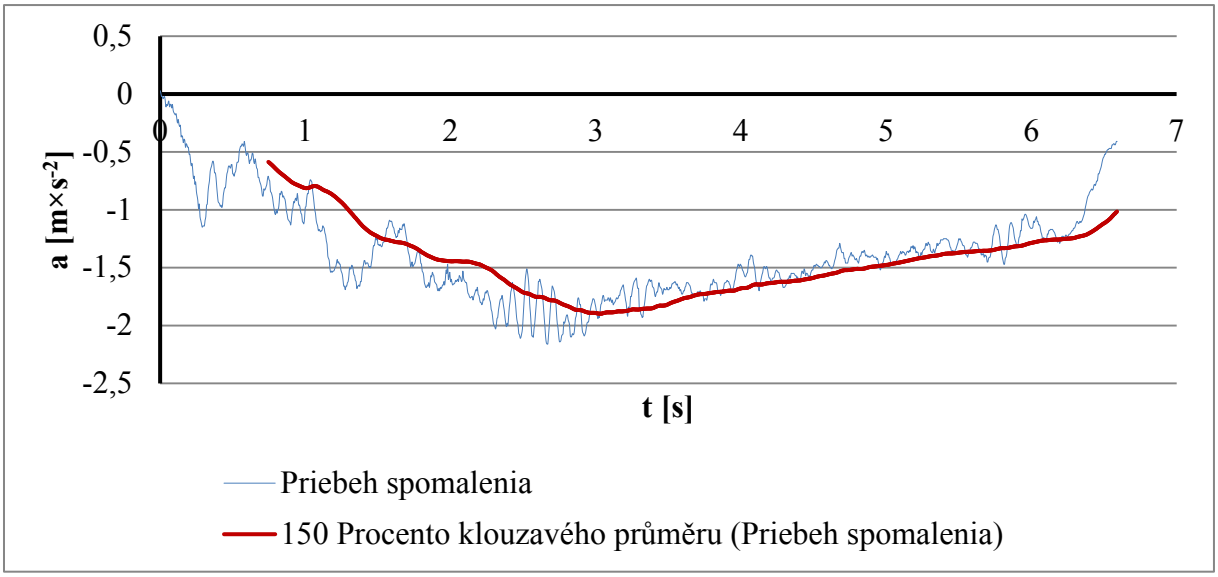
$t := 8.095\ \textbf{\textit{s}}$

$v := v_0 - a \cdot t = 10\ \textbf{\textit{kph}}$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 61.4\ \textbf{\textit{m}}$

3.2.7 5. Stupeň retardéra

6 prevodový stupeň



Obr. č. 100 – Spomalenie 5. stupňom retardéra pri zaradenom 6 prevodovom stupni

$a_{pr} = 1{,}365\ \mathrm{m/s^2}$; $a_{max} = 2{,}16\ \mathrm{m/s^2}$

$v_0 := 45\ \ kph$

$t := 6.59\ \ s$

$v := v_0 - a \cdot t = 13\ \ kph$

$s := v_0 \cdot t - \frac{1}{2} \cdot a \cdot t^2 = 52.7\ \ m$