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95% 80% . — « - ».

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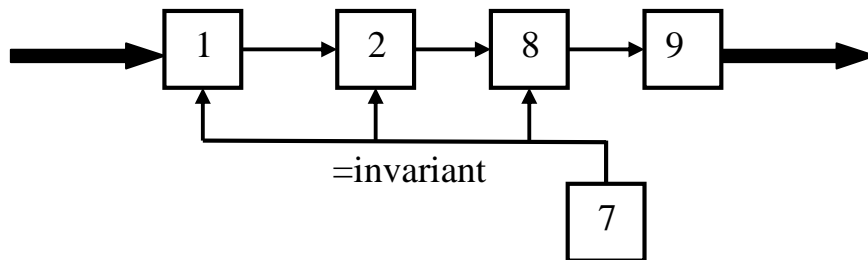
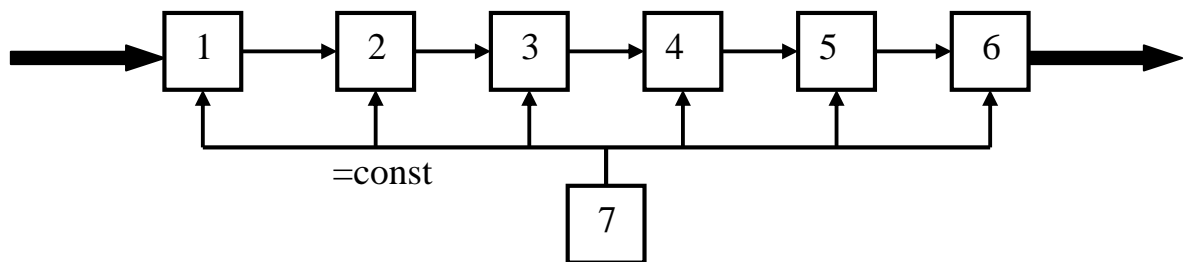
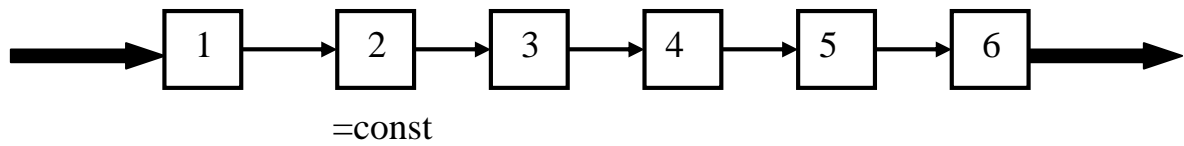
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1949 ( ) 1957 . IBM , Toyota ( ) 1966 .

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/ - 3,82/1,67 )	Audi A2 – 895 ,		-
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40%		,	
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 – Volkswagen (1936); – Toyota (1966); – Volkswagen Audi A2 (1998).  
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$$b/a=1.33.$$

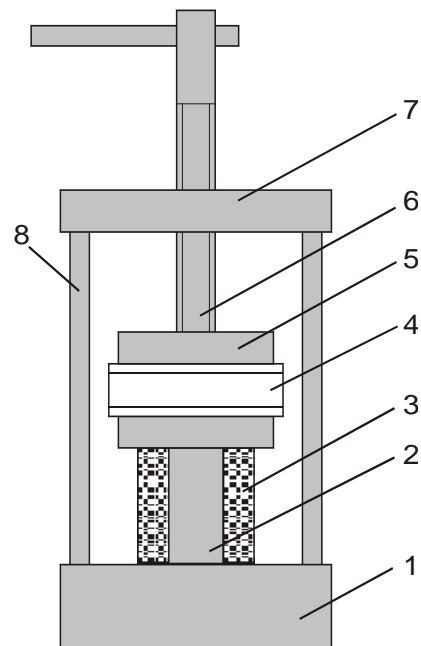
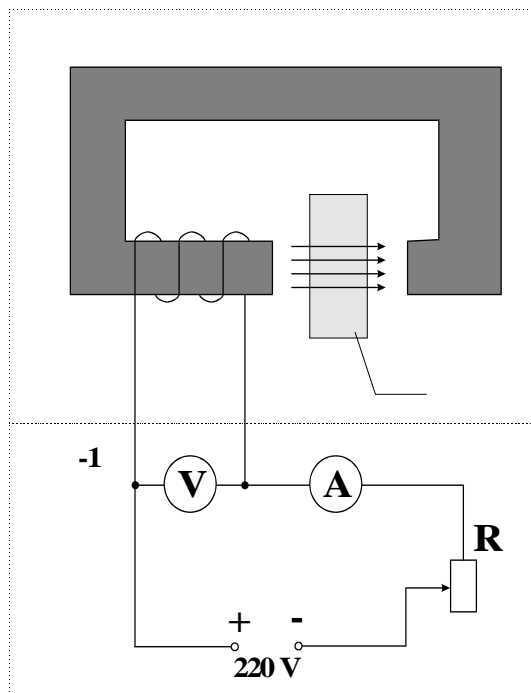
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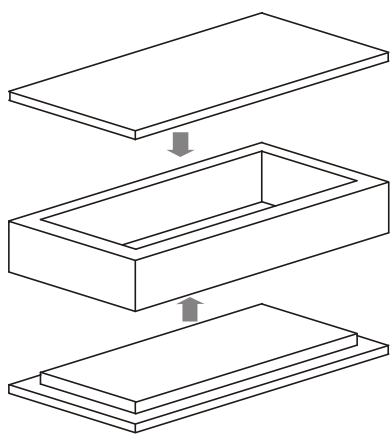
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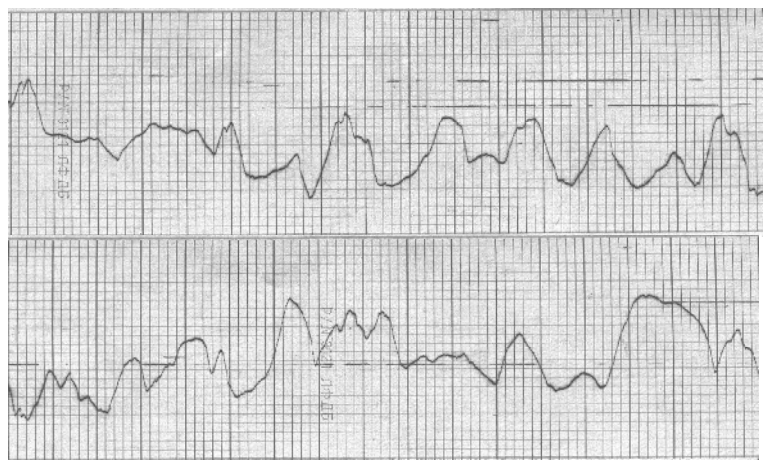
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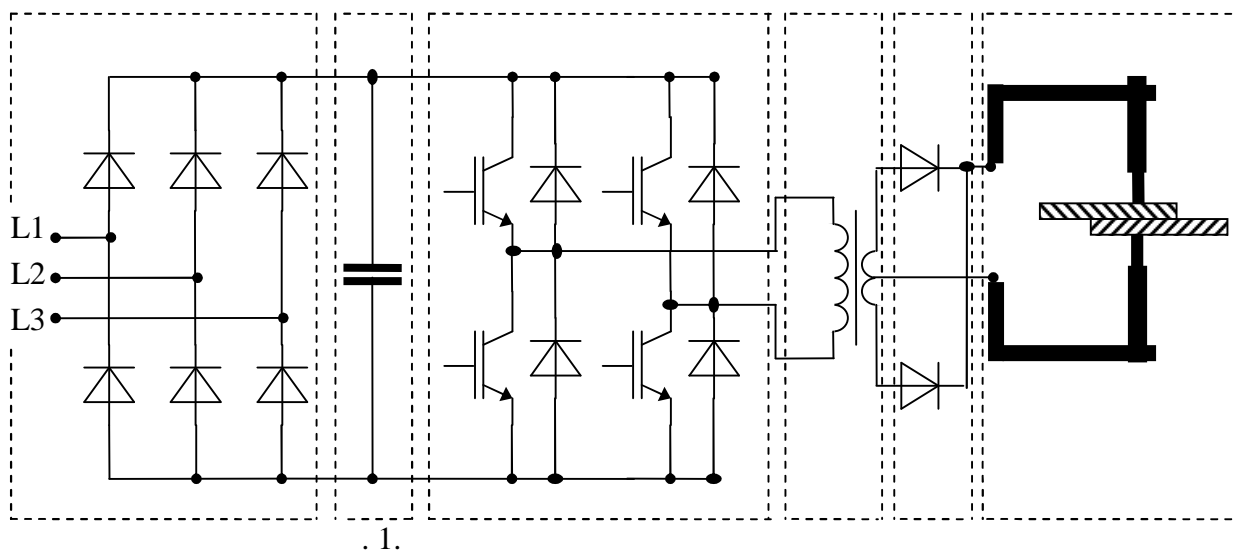
# IGBT-

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Semikron –

IGBT-

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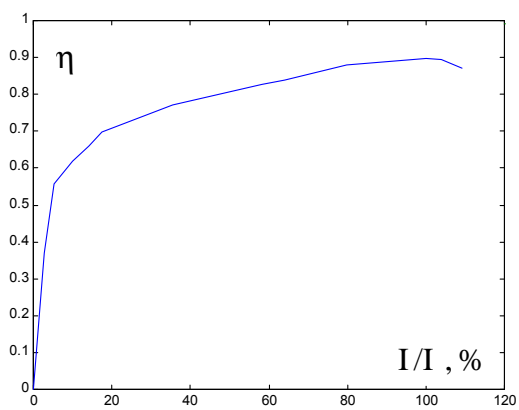
Simplorer 4.2

IGBT

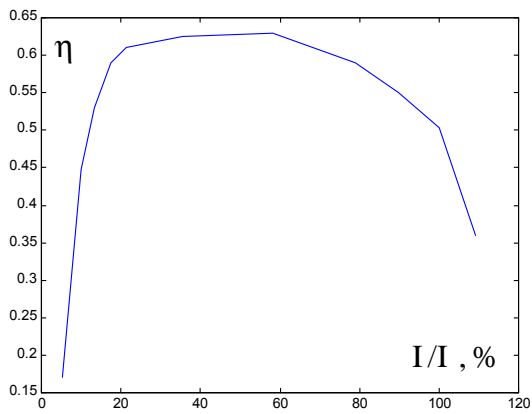
IGBT

$f=10$

( .2, 3).



. 2.



. 3.

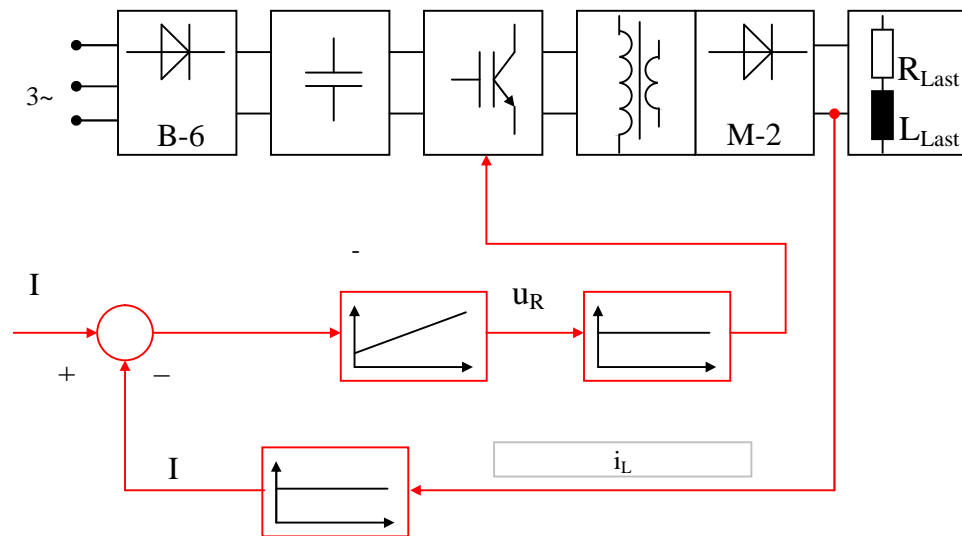
$v_T>0,37$

IGBT



$$v_T=0,05.$$

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IGBT-

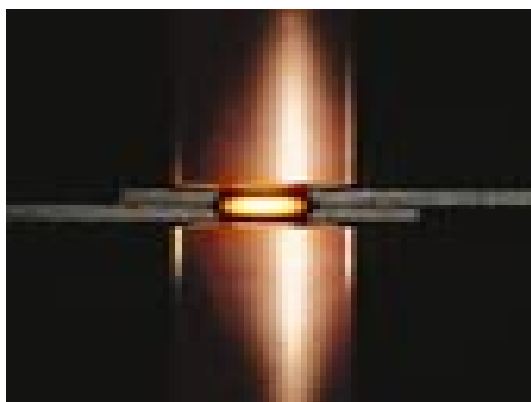
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, 1999, 2. 2. Lunze J. Regelungstechnik 1. Systemtheoretische Grundlagen: Analyse und Entwurf einschleifiger Regelungen- Berlin, Heidelberg: Springer-Verlag, 1999.

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Semikron

LMG 310 ( .2)



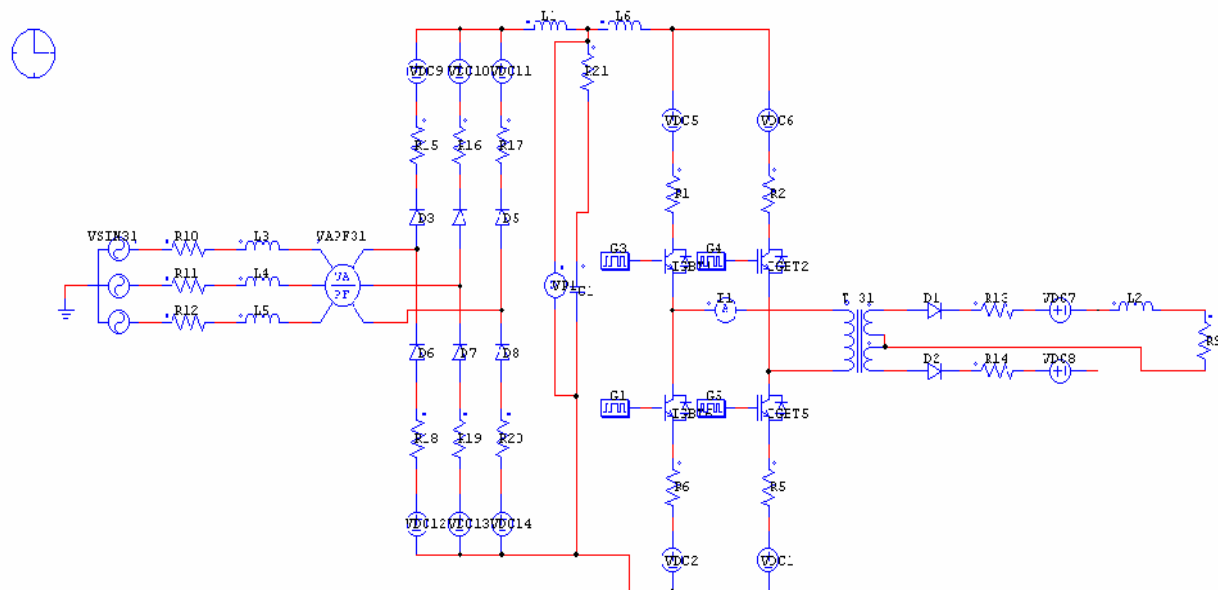
. 2.

LMG 310

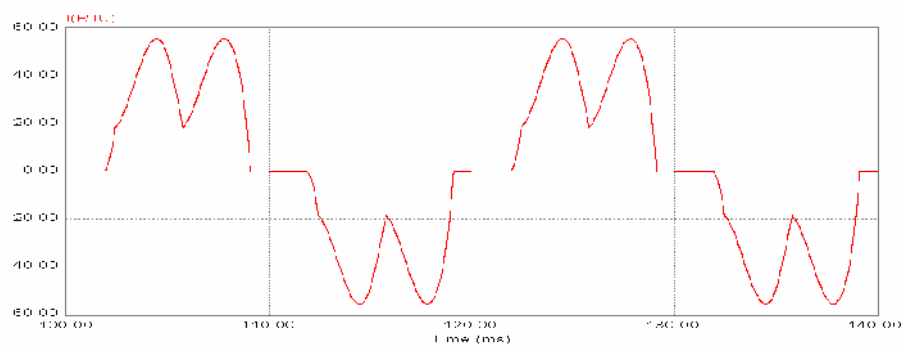
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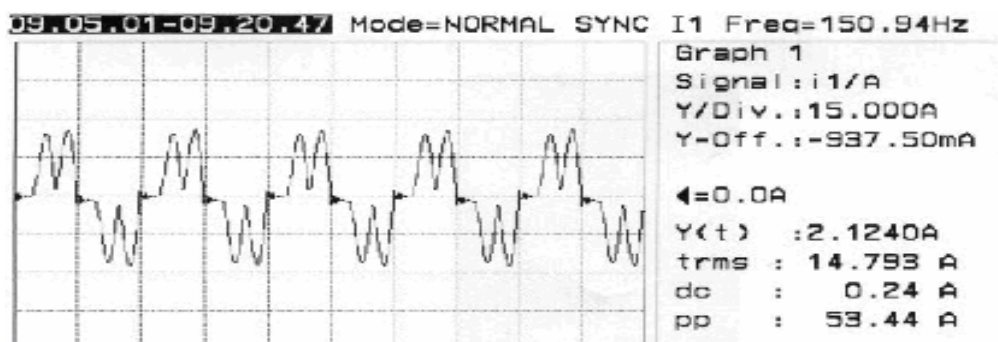


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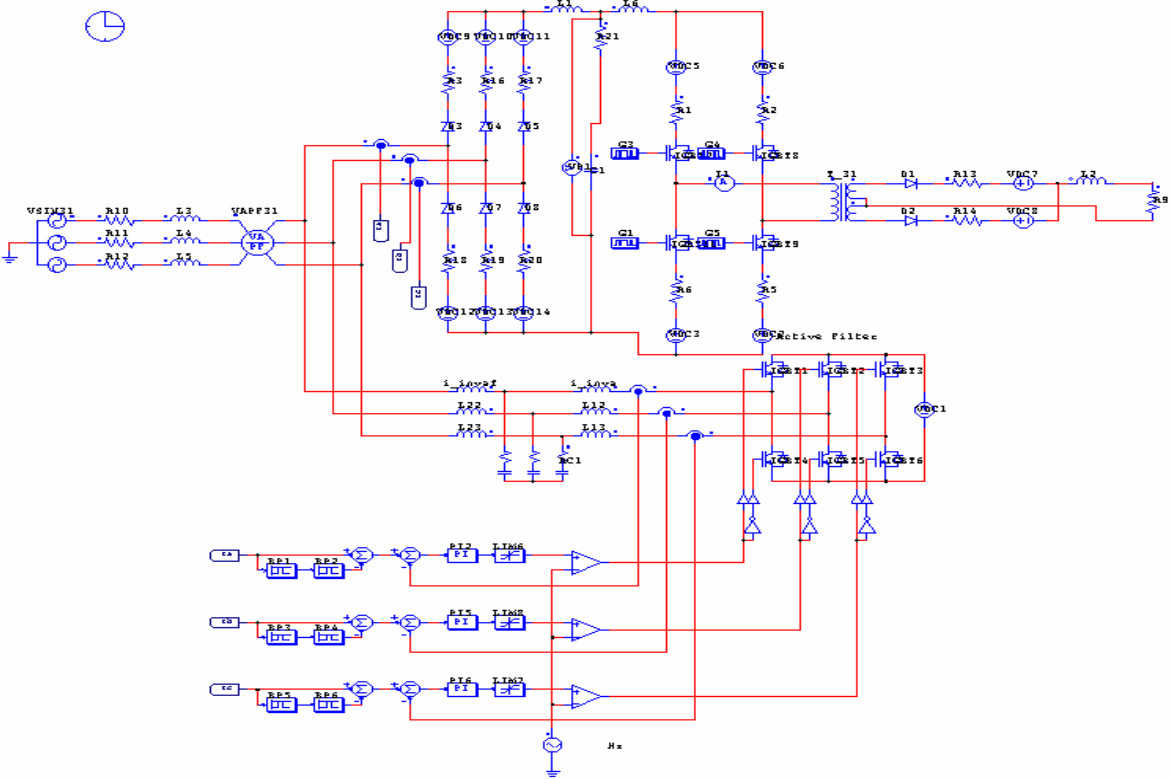
IGBT  $V_T=0.47$ ,  
LMG 310 ( . 5).



.5.

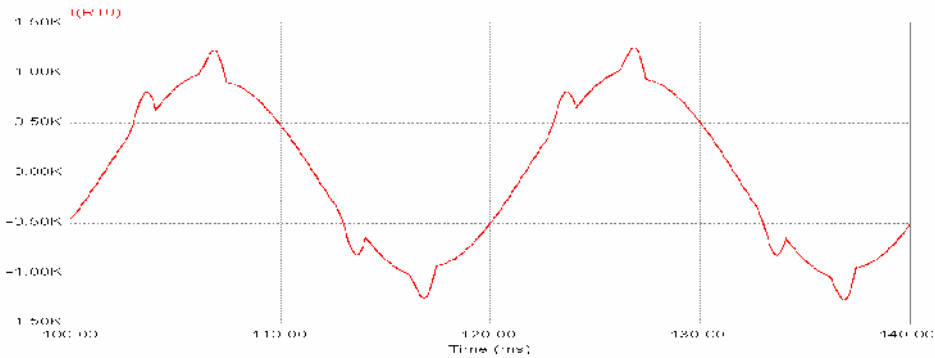
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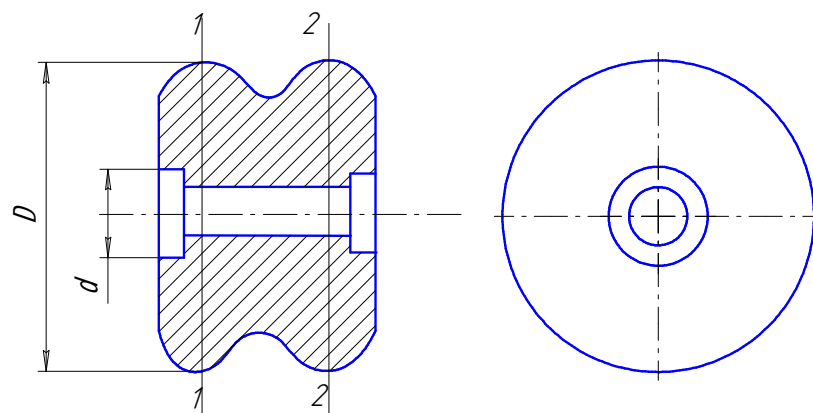
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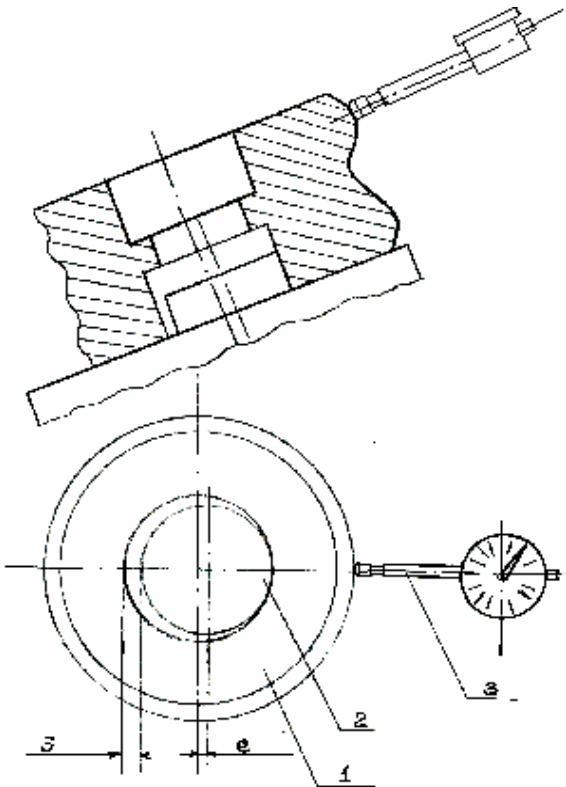
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%	0	0	5
%	8,5	11,4	5,7
%	8,5	5,7	0

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( 0,01 , 0-10 ).

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3: 1 - , 2 -  
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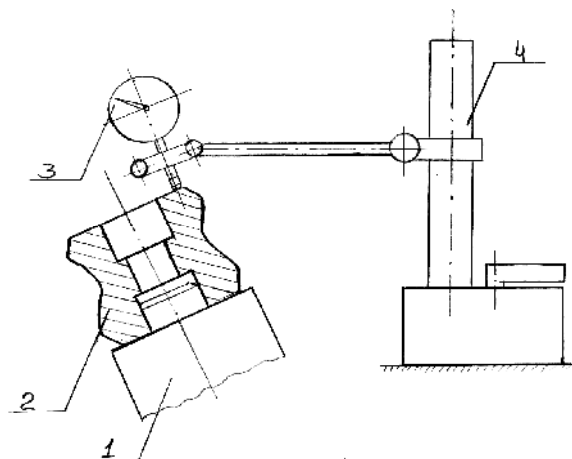
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	d				D			
	1		2		1		2	
1	39,5	39,5	39,6	39,7	75,0	75,0	75,0	75,0
2	39,6	39,7	39,7	39,7	75,1	75,1	75,1	75,0
3	39,6	39,6	39,7	39,7	75,0	75,0	74,9	75,0
4	39,7	39,6	39,7	39,7	75,0	75,0	75,0	75,0
5	39,7	39,7	39,8	39,8	75,1	75,1	75,0	75,1
6	39,5	39,5	39,6	39,6	75,0	75,1	75,0	75,0
7	39,6	39,7	39,6	39,5	75,1	75,1	75,0	75,1
8	39,6	39,5	39,6	39,5	75,0	75,1	75,0	75,0
9	39,6	39,7	39,5	39,5	75,0	75,0	75,0	75,0
10	39,7	39,7	39,7	39,7	75,1	75,0	75,0	75,1



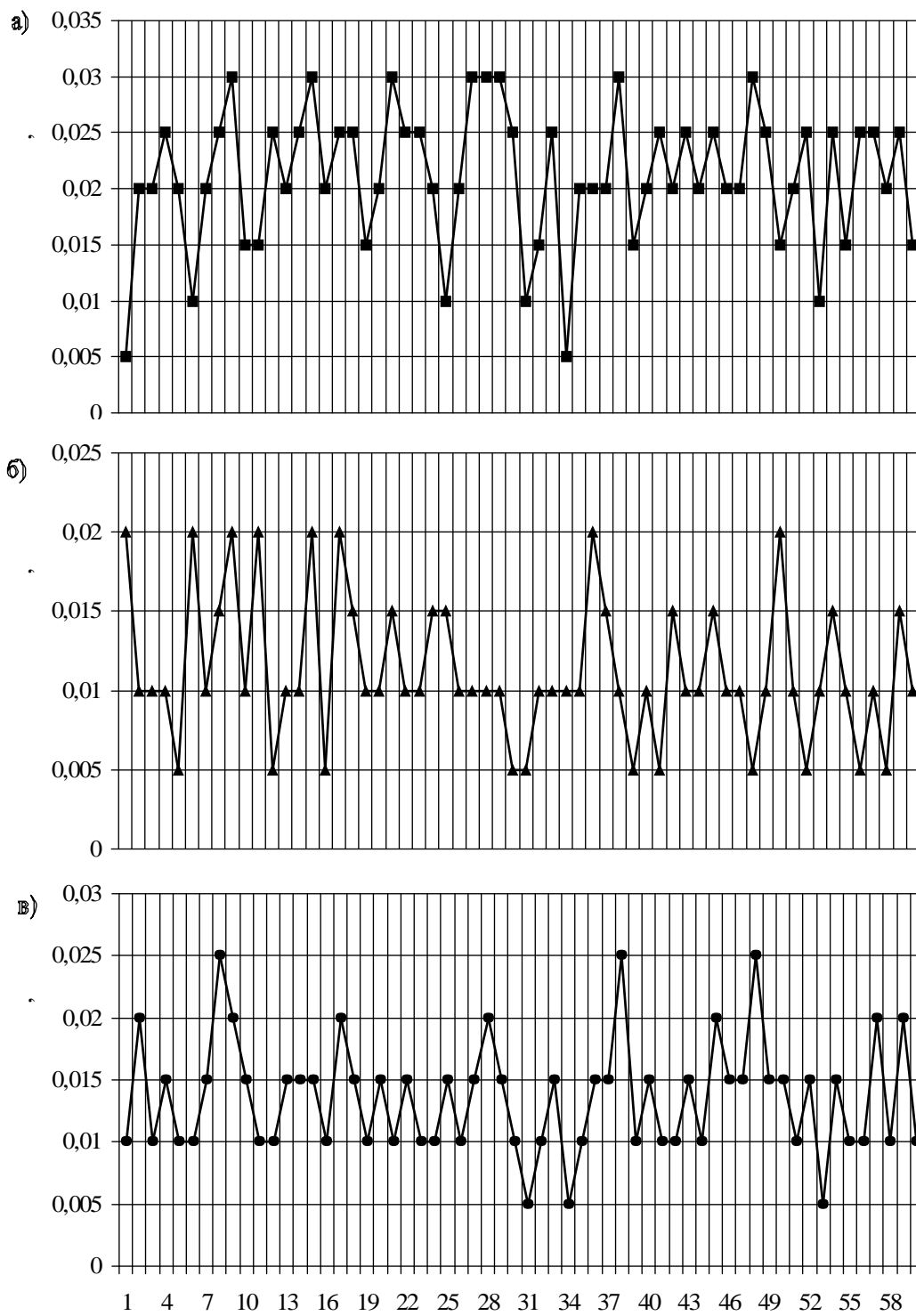
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2	2	1	1	1	0,5	2	1	1,5	2	1	2	0,5
	1	2	1	1,5	1	1	1,5	2,5	2	1,5	1	1

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 - 0,02 .



. 4.



$$- = \frac{1}{n} \cdot \sum_{i=1}^n i,$$
$$\frac{1}{n} \cdot \sum_{i=1}^n (x_i - \bar{X})^2 .$$
$$S_x^2 = \frac{1}{n-1} \cdot \sum_{i=1}^n (x_i - \bar{X})^2$$

$$S_x = \sqrt{\frac{1}{n-1} \cdot \sum_{i=1}^n (x_i - \bar{X})^2}$$

—  $S_x$ , « » ,  
 $x_i$  . ,  
—  $3S_x$  ,  
—  $3S_x$  .  
5.

5 – ,

	-	$S_x$ ,	- , $3S_x$	- ( $\bar{X} - 3S_x$ ; $\bar{X} + 3S_x$ )
1	0,021	0,0062	0,0186	0,002...0,040
2	0,011	0,0046	0,0138	0...+0,025
	0,014	0,0046	0,0138	0...+0,028

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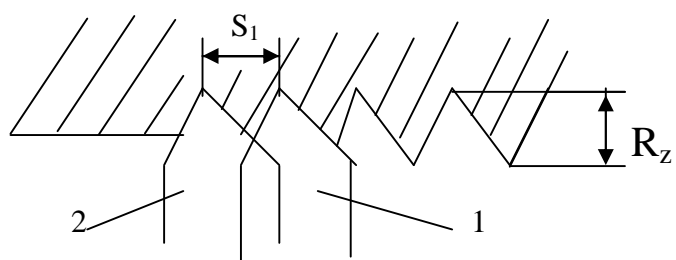
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$S_1$  ( / ) 1 2 ( .1).



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$R_z$ . , -

, ,  $S_1$  . -

$\varphi \quad \varphi_1$  . , -

$R_z$  . -

( $U = 2 \div 5$  / ), , .

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-  
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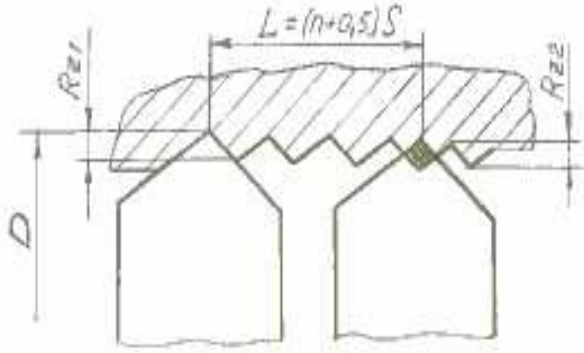
( $U > 70$  / ), , -

[2].

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D ( .2)

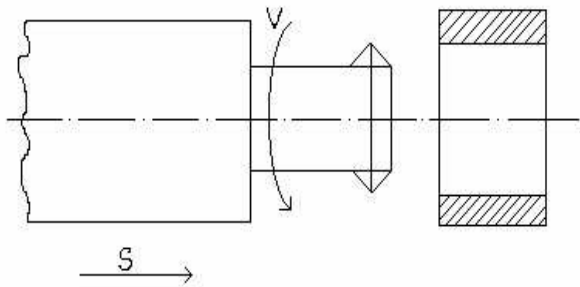
:

$L = n + 0,5S,$   
 $n -$  ,  $S -$  , / .



. 2.

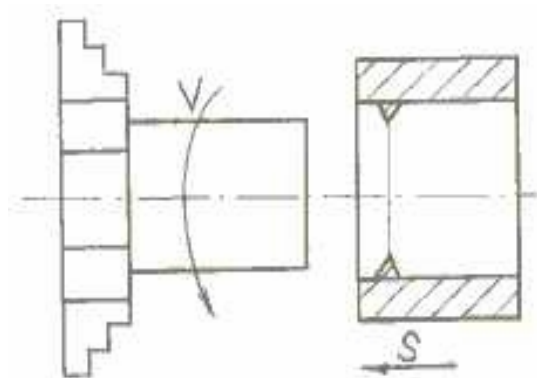
$180^\circ$  ( .3).



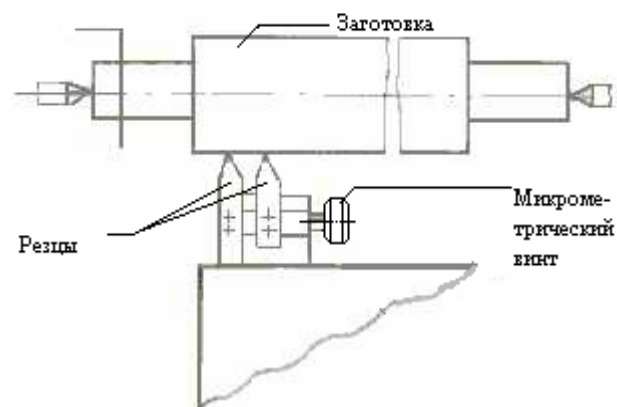
.3.

( .4)  $180^\circ$  .

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.4.



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$$\vdots$$

$$\eta = \frac{\sigma_1 + \sigma_2 + \sigma_3}{\sigma},$$

$\sigma_1, \sigma_2, \sigma_3$  - ,  $\sigma$  -

$$\sigma_i = \frac{1}{\sqrt{2}} \sqrt{(\sigma_1 - \sigma_2)^2 + (\sigma_2 - \sigma_3)^2 + (\sigma_1 - \sigma_3)^2},$$

$$e_p = 2 \ln \frac{d_o}{d},$$

$d_o$  - ,  $d$  -

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$e_i$

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$\eta_k$ ,

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:  $\eta = \eta(e_i)$

-

( $\eta \cong const$ ),

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$\eta$

$e_i$ .

-

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$$= \frac{e_i}{e_p(\eta)} \leq 1.$$

$e_i$  -

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$e_i$

$\eta = \eta(e_i)$

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$e_i$

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[1]:

$$\Psi = \int_0^{e_i^*} (1+f) \frac{e_i^f de_i}{[e_p(e_i)]^{1+f}} \leq 1,$$

$$f = 0.2 \operatorname{arctg} \frac{d\eta}{de_i},$$

 $e_p(e_i)$  - $e_i$  -

$$\Psi = \Psi_1 + \Psi_2,$$

 $(\eta \leq 0)$  $(\eta \geq 0)$ 

$$\Psi_1 = (1+f_1) a^{1+f_1} \int_0^{e_i(0)} \frac{e_i^{f_1}}{A e_i + C} de_i,$$

$$\Psi_2 = \int_0^\eta \frac{1+f_2}{e_p(\eta=0)1+f_1} (2C\eta+b) (C\eta^2+b\eta+a)^{f_2} e^{(1+f_2)\lambda_1} d\eta, \quad f_2 = 0.2 \operatorname{arctg} \left[ \frac{1}{2C\eta+b} \right],$$

 $e_p(\eta=0)$  - $\eta=0$  (

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.[2].

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