

Ringlaser:

~~58 mm~~

Messbereich \rightarrow :

Außen \uparrow 58 mm

50 mm

Mitte - 47 mm

42 mm

Außen \downarrow 347 mm

bei $T \approx 45$

$$s_T = 0,2 \text{ ms}$$

$$s_{0T} = 2 \text{ ms}$$

$$s_{\pm 0} = 0,05 \text{ mm}$$

wenn nicht
anders
angegeben

a) feste Drehzahl; verschiedene ± 0

$$1. T = 45,0 \text{ ms}$$

~~87 ms~~

| x_d / mm | N | $\Delta t / \mu\text{s}$ | x_0 / mm | N | $\Delta t / \mu\text{s}$ |
|-------------------|----|--------------------------|-------------------|----|--------------------------|
| 38,00 | 10 | 534,0 | 42,00 | 6 | 660,5 |
| 37,00 | 10 | 504,0 | 43,00 | 4 | 527,5 |
| 36,00 | 12 | 565,5 | 50,00 | 3 | 487,0 |
| 35,00 | 15 | 604,5 | 51,00 | 6 | 640,5 |
| 34,00 | 9 | 562,5 | 52,00 | 7 | 686,5 |
| 40,00 | 9 | 627,0 | 53,00 | 9 | 6710,5 |
| 41,00 | 8 | 666,0 | 54,00 | 10 | 676,5 |
| 57,00 | 12 | 587,0 | 55,00 | 10 | 617,0 |
| 58,00 | 8 | 357,5 | 56,00 | 11 | 577,0 |

~~87 ms~~

$$2. T = 60,0 \text{ ms}$$

| x_d / mm | N | $\Delta t / \mu\text{s}$ | x_0 / mm | N | $\Delta t / \mu\text{s}$ |
|-------------------|----|--------------------------|-------------------|----|--------------------------|
| 58,00 | 10 | 592,5 | 35,00 | 11 | 582,0 |
| 56,50 | 6 | 422,5 | 36,50 | 9 | 533,5 |
| 55,00 | 9 | 734,5 | 38,00 | 8 | 502,0 |
| 53,50 | 6 | 575,5 | 39,50 | 7 | 636,5 |
| 52,00 | 5 | 596,0 | 41,00 | 4 | 430,5 |

$$3. T = 30,0 \text{ ms}$$

$$(S_{\Delta t} = 1 \text{ ms} *)$$

| x_0 / mm | N | $\Delta E / \mu\text{s}$ | x_0 / mm | N | $\Delta E / \mu\text{s}$ |
|-------------------|-----|--------------------------|-------------------|-----|--------------------------|
| 35,00 | 8 | 212,50 | 44,00 | 4 | 452,0 |
| 36,50 | 6 | 188,75 | 58,00 | 8 | 237,75 |
| 38,00 | 8 | 204,50 | 56,50 | 8 | 269,50 |
| 39,50 | 5 | 223,50 | 55,00 | 7 | 278,75 |
| 41,00 | 5 | 283,50 | 53,50 | 7 | 339,50 |
| 42,50 | 8 | 627,5 | 52,00 | 4 | 258,50 |
| | | | 50,50 | 7 | 583,50 |

b) festes x_0 , variables T

$$1: x_0 = 57,00$$

$$S_{\Delta t} = 1 \text{ ms} \text{ für gesamte Messung}$$

| T / ms | N | $\Delta E / \mu\text{s}$ | T / ms | N | $\Delta E / \mu\text{s}$ |
|-----------------|-----|--------------------------|-----------------|-----|--------------------------|
| 30,0 | 8 | 258,25 | 48,0 | 6 | 300,00 |
| 33,0 | 6 | 270,00 | 51,0 | 7 | 367,25 |
| 36,0 | 5 | 785,25 | 54,0 | 7 | 396,50 |
| 39,0 | 6 | 258,00 | 57,0 | 5 | 312,50 |
| 42,0 | 8 | 376,50 | 60,0 | 5 | 327,75 |
| 45,0 | 7 | 337,25 | | | |

$$2. x_0 = 53,00$$

$$(S_{\Delta t} = 1 \text{ ms} *)$$

| T / ms | N | $\Delta E / \mu\text{s}$ | T / ms | N | $\Delta E / \mu\text{s}$ |
|-----------------|-----|--------------------------|-----------------|-----|--------------------------|
| 30,0 | 4 | 227,75 | 48,0 | 9 | 756,0 |
| 33,0 | 7 | 399,75 | 51,0 | 8 | 758,0 |
| 36,0 | 6 | 302,50 | 54,0 | 7 | 645,0 |
| 39,0 | 6 | 404,25 | 57,0 | 8 | 748,0 |
| 42,0 | 9 | 643,5 | 60,0 | 6 | 649,0 |
| 45,0 | 9 | 639,0 | | | |

$$S. X = 36,00 \text{ mm}$$

$$S_{DE} = 1 \mu s$$

| T/ms | N | DE/ μs |
|------|----|-------------|
| 30,0 | 11 | 316,00 |
| 33,0 | 8 | 265,00 |
| 36,0 | 7 | 265,50 |
| 39,0 | 10 | 382,00 |
| 42,0 | 5 | 211,50 |
| 45,0 | 7 | 314,25 |

| T/ms | N | DE/ μs |
|------|---|-------------|
| 48,0 | 5 | 238,50 |
| 51,0 | 6 | 206,25 |
| 54,0 | 5 | 278,00 |
| 57,0 | 5 | 270,25 |
| 60,0 | 6 | 360,00 |

$$4. X = 40,00 \text{ mm}$$

$$S_{DE} = 1 \mu s$$

| T/ms | N | DE/ μs |
|------|---|-------------|
| 30,0 | 6 | 202,25 |
| 33,0 | 7 | 367,25 |
| 36,0 | 7 | 394,75 |
| 39,0 | 6 | 362,75 |
| 42,0 | 6 | 403,75 |
| 45,0 | 6 | 425,75 |

| T/ms | N | DE/ μs |
|------|---|-------------|
| 48,0 | 5 | 373,25 |
| 51,0 | 4 | 320,50 |
| 54,0 | 4 | 345,75 |
| 57,0 | 4 | 353,25 |
| 60,0 | 4 | 363,50 |

W.W.