

## Dial Test Indicators

Most modern methods are applied in the production of our high quality Dial Test Indicators. They are both sensitive and shock-resistant. Here are some of the advantages applicable to the whole series:

- All features of the models reading up to 1 mm measuring range conform to DIN 2270. This applies to all deviation spans, the measuring force and the hysteresis error of the measuring force.
- Automatic change of the direction of measurement.
- Indication clockwise in all types.
- Precise components, running in ruby bearings, warrant highest precision throughout.
- Precision bearing for the lever shaft.
- Body with 3 dovetail slides for clamping the stem and other equipment.
- Body chromed in order to protect the dovetail slides against damage.
- Tungsten carbide ball 2 mm Ø in measuring inserts.
- Dial adjustable by knurled bezel.
- Supplied in a convenient box with transparent lid with 1 stem Ø 8 mm h 6 and 1 spanner for changing the contact points.

Technical data for metric Dial Test Indicators Lever Type

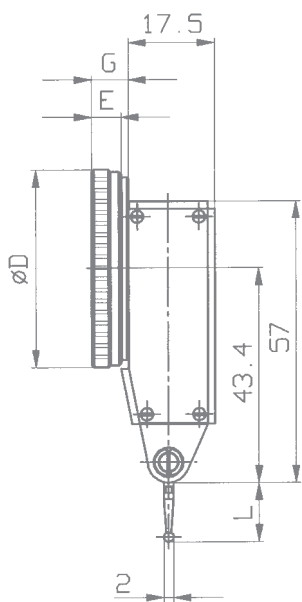
Model	Reading	Range	Dial reading	Bezel-Ø	Form to DIN 2270	Length of contact point
K 30	0.01 mm	0.8 mm	0-40-0	32 mm	A	12.8 mm
K 30/1	0.01 mm	1.0 mm	0-50-0	32 mm	A	16.6 mm
K 30/4	0.01 mm	4.0 mm	0-100	28.4 mm	A	38.0 mm
K 31	0.01 mm	0.8 mm	0-40-0	32 mm	B	12.8 mm
K 32	0.01 mm	0.8 mm	0-40-0	32 mm	C	12.8 mm
K 33	0.01 mm	0.5 mm	0-25-0	32 mm	A	35.7 mm
K 34	0.01 mm	0.5 mm	0-25-0	32 mm	B	35.7 mm
K 35	0.01 mm	0.5 mm	0-25-0	32 mm	C	35.7 mm
K 36	0.002 mm	0.2 mm	0-100-0	32 mm	A	12.8 mm
K 36/0.4	0.002 mm	0.4 mm	0-100-0	28.4 mm	A	12.0 mm
K 37	0.002 mm	0.2 mm	0-100-0	32 mm	B	12.8 mm
K 38	0.002 mm	0.2 mm	0-100-0	32 mm	C	12.8 mm
K 40	0.01 mm	0.8 mm	0-40-0	40 mm	A	12.8 mm
K 40/1	0.01 mm	1.0 mm	0-50-0	40 mm	A	16.6 mm
K 40/4	0.01 mm	4.0 mm	0-100	38.2 mm	A	38.0 mm
K 41	0.01 mm	0.8 mm	0-40-0	40 mm	B	12.8 mm
K 42	0.01 mm	0.8 mm	0-40-0	40 mm	C	12.8 mm
K 43	0.01 mm	0.5 mm	0-25-0	40 mm	A	35.7 mm
K 44	0.01 mm	0.5 mm	0-25-0	40 mm	B	35.7 mm
K 45	0.01 mm	0.5 mm	0-25-0	40 mm	C	35.7 mm
K 46	0.002 mm	0.2 mm	0-100-0	40 mm	A	12.8 mm
K 46/0.4	0.002 mm	0.4 mm	0-100-0	38.2 mm	A	12.0 mm
K 47	0.002 mm	0.2 mm	0-100-0	40 mm	B	12.8 mm
K 48	0.002 mm	0.2 mm	0-100-0	40 mm	C	12.8 mm
K 40 AD	0.01 mm	0.8 mm	0-40-0	40 mm	A	12.8 mm
K 43 AD	0.01 mm	0.5 mm	0-25-0	40 mm	A	35.7 mm
K 46 AD	0.002 mm	0.2 mm	0-100-0	40 mm	A	12.8 mm
K 49 AD	0.001 mm	0.2 mm	0-100-0	40 mm	A	12.8 mm
K 40/2	0.02 mm	2 mm	0-100-0	40 mm	A	35.7 mm
K 58	0.001 mm	0.2 mm	0-100-0	58 mm	A	12.8 mm

Dial Test Indicators adding 'AD' in the model designation possess a water-protected dial casing. The transparent front cover, made of knock resistant plastic, produces a good seal of the dial casing only conforming to protection class IP 53. Another advantage of this design is that the anti-reflective coating of the front cover reduces shadows on the dial face and makes the Dial Test Indicators easy to read even at awkward angles.

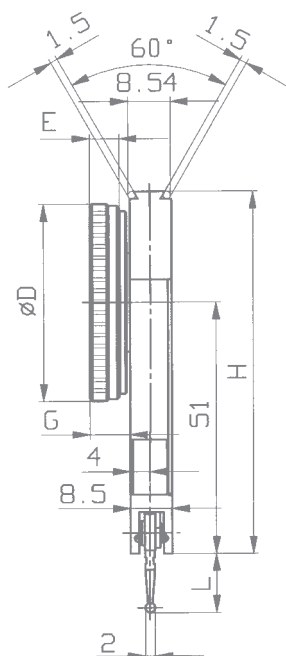
Inch Dial Test Indicators Lever Type see page 99.

## Dimensioned drawings for Dial Test Indicators

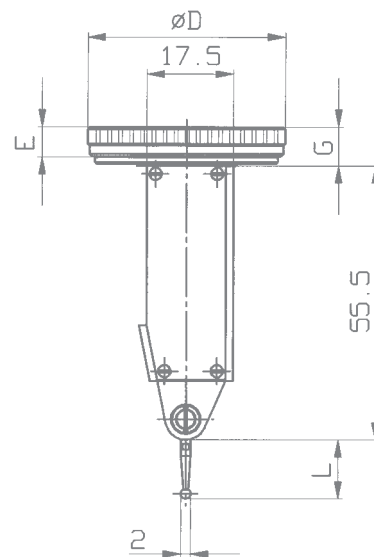
Dimensions						
Models	D	E	G	H	L	Form to DIN 2270
K 30, K 36	32 mm	5.6 mm	7.1 mm	–	12 mm	A
K 31, K 37	32 mm	5.6 mm	7.7 mm	69.5 mm	12 mm	B
K 32, K 38	32 mm	5.6 mm	7.5 mm	–	12 mm	C
K 33	32 mm	5.6 mm	7.1 mm	–	35 mm	A
K 34	32 mm	5.6 mm </td <td>7.7 mm</td> <td>69.5 mm</td> <td>35 mm</td> <td>B</td>	7.7 mm	69.5 mm	35 mm	B
K 35	32 mm	5.6 mm	7.5 mm	–	35 mm	C
K 40, K 46	40 mm	6 mm	7.5 mm	–	12 mm	A
K 41, K 47	40 mm	6 mm	8.1 mm	73.5 mm	12 mm	B
K 42, K 48	40 mm	6 mm	7.9 mm	–	12 mm	C
K 43	40 mm	6 mm	7.5 mm	–	35 mm	A
K 44	40 mm	6 mm	8.1 mm	73.5 mm	35 mm	B
K 45	40 mm	6 mm	7.9 mm	–	35 mm	C
K 40/2	40 mm	6 mm	7.5 mm	–	35 mm	A



Form A DIN 2270



Form B DIN 2270



Form C DIN 2270

## Dial Test Indicator K 30

The friction clutch mechanism of these Dial Test Indicators provides a very effective shockproof system. Standard versions are equipped with contact points having a tungsten carbide ball of 2 mm diameter. On request contact points with ball diameters of 0.4 mm, 1 mm or 3 mm can be fitted. Also available are contact points with a 2 mm diameter ruby ball.

Standard equipment includes: 1 contact point with tungsten carbide ball 2 mm Ø, 1 stem 8 mm Ø and 1 spanner for changing the contact points.

Dial Test Indicator K 30	
Reading	0.01 mm
Range	0.8 mm
Dial reading	0-40-0
Bezel-Ø	32 mm
Form to DIN 2270	A
Dimensions and accuracy according to	DIN 2270
Measuring force	0.07 N ± 20%
Length of contact point	12.8 mm
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	page 93

## Dial Test Indicator K 40

Dial Test Indicator K 40	
Reading	0.01 mm
Range	0.8 mm
Dial reading	0-40-0
Bezel-Ø	40 mm
Form to DIN 2270	A
Dimensions and accuracy according to	DIN 2270
Measuring force	0.07 N ± 20%
Length of contact point	12.8 mm
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	page 93



Dial Test Indicators are also available with extended measuring ranges of 1 mm or 2 mm. Please request our offer for the models K 30/1, K 30/2, K 40/1 and K 40/2.

## Dial Test Indicator K 37

## Dial Test Indicator K 46

These are instruments distinguished by high sensitivity and accuracy. They are used whenever especially high demands are made for accurate measurements of concentricity and run-out. Clearly defined scale divisions warrant easy, non-tiring use.

Standard equipment includes: 1 contact point with 2 mm Ø tungsten carbide ball, 1 stem 8 mm Ø and 1 spanner for changing the contact points.

Dial Test Indicator K 37	
Reading	0.002 mm
Range	0.2 mm
Dial reading	0-100-0
Bezel-Ø	32 mm
Form to DIN 2270	B
Dimensions and accuracy according to	DIN 2270
Measuring force	0.15 N ± 20%
Length of contact point	12.8 mm
Swivelling range of contact point parallel to the scale	240°
Dimensioned drawing	page 93

Dial Test Indicator K 46	
Reading	0.002 mm
Range	0.2 mm
Dial reading	0-100-0
Bezel-Ø	40 mm
Form to DIN 2270	A
Dimensions and accuracy according to	DIN 2270
Measuring force	0.15 N ± 20%
Length of contact point	12.8 mm
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	page 93



## Dial Test Indicator K 30/1

The extended range of 1 mm with model K 30/1 offers an even wider field of application than the standardized models to DIN 2270 with 0.8 mm range.

Even with the extended range of 1 mm its deviation spans conform to DIN 2270.

Dial Test Indicator K 30/1	
Reading	0.01 mm
Range	1.0 mm
Dial Reading	0-50-0
Bezel-Ø	32 mm
Form to DIN 2270	A
Dimensions and accuracy according to	DIN 2270
Measuring force	0.05 N ± 20%
Length of contact point	16.6 mm
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	on request



## Dial Test Indicator K 49 AD

Model K 49 AD possesses a water-protected dial casing. The transparent front cover, made from resistant plastic, produces a good seal of the dial casing only conforming to protection class IP 53. Another advantage of this design is that the anti-reflective coating of the front cover reduces shadows on the dial face and makes model K 49 AD easy to read.

Dial Test Indicator K 49 AD	
Reading	0.001 mm
Range	0.2 mm
Dial Reading	0-100-0
Bezel-Ø	40 mm
Form to DIN 2270	A
Dimensions and accuracy according to	DIN 2270
Measuring force	0.15 N ± 20%
Length of contact point	12.8 mm
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	on request



Another Dial Test Indicator with a reading of 0.001 mm is our model K 58. This model provides excellent readability due to its bezel diameter of 58 mm.

## Dial Test Indicator K 33

## Dial Test Indicator K 45

The Dial Test Indicators K 33 and K 45 have a 35 mm long contact point which makes them suitable for difficult accessible applications.

Please make sure to use contact points with correct length because of the effect of the angle ratio of the Dial Test Indicator. Using contact points with incorrect length will result in measuring errors.

Standard equipment includes: 1 contact point with 2 mm Ø tungsten carbide ball, 1 stem 8 mm Ø and 1 spanner for changing the contact points.

Dial Test Indicator K 33	
Reading	0.01 mm
Range	0.5 mm
Dial reading	0-25-0
Bezel-Ø	32 mm
Form to DIN 2270	A
Dimensions and accuracy according to	DIN 2270
Measuring force	0.05 N ± 20%
Length of contact point	35.7 mm
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	page 93

Dial Test Indicator K 45	
Reading	0.01 mm
Range	0.5 mm
Dial reading	0-25-0
Bezel-Ø	40 mm
Form to DIN 2270	C
Dimensions and accuracy according to	DIN 2270
Measuring force	0.05 N ± 20%
Length of contact point	35.7 mm
Swivelling range of contact point perpendicular to the scale	240°
Dimensioned drawing	page 93



## Accessories for metric Dial Test Indicators

### Stems with dovetail:



2.4804 Ø 4 mm h6    2.4801 Ø 8 mm h6    2.4816 Ø 8 mm h6, swivelling range  $\pm 40^\circ$

### Contact points thread M 1.6 length 12 mm

5.2297 Tungsten carbide ball Ø 0.4 mm, L = 12.0 mm



5.2282 Tungsten carbide ball Ø 1 mm, L = 12.3 mm



5.2281 Tungsten carbide ball Ø 2 mm, L = 12.8 mm



5.2283 Tungsten carbide ball Ø 3 mm, L = 13.3 mm



5.2296 Ruby ball Ø 2 mm, L = 12.8 mm

### Contact points thread M 1.6 length 35 mm



5.2285 Tungsten carbide ball Ø 1 mm, L = 35.2 mm



5.2284 Tungsten carbide ball Ø 2 mm, L = 35.7 mm



5.2286 Tungsten carbide ball Ø 3 mm, L = 36.2 mm



5.2298 Ruby ball Ø 2 mm, L = 35.7 mm

### Contact points thread M 1.6 length 16.6 mm



5.2280 Tungsten carbide ball Ø 2 mm



5.2299 Ruby ball Ø 2 mm

### Centering Holder FH 8

Stem Ø 8 mm h6  
with mounting bore Ø 4 mm H7 and dovetail clamp  
Additional mounting bore Ø 8 mm H7



### Round Holder FH 90

8 mm Ø x 90 mm  
with mounting bore Ø 8 mm H7  
and dovetail clamp



### Square Holder 1.0958

6 x 12 x 72 mm  
with mounting bore Ø 4 mm H7  
and Ø 8 mm H7 and dovetail clamp



### Spanner 3.1483



## Inch Dial Test Indicators

Most modern methods are applied in the production of our high quality Dial Test Indicators. They are both sensitive and shock-resistant.

Here are some of the advantages applicable to the whole series of Inch reading models:

- All features of the models reading up to .04" measuring range conform analogous to the German Standard DIN 2270. This applies to all deviation spans, the measuring force and the hysteresis error of the measuring force.
- Automatic change of the direction of measurement.
- Indication clockwise in all types.
- Precise components, running in ruby bearings, warrant highest precision throughout.
- Precision bearing for the lever shaft.
- Body with 3 dovetail slides for clamping the stem and other equipment.
- Body chromed in order to protect the dovetail slides against damage.
- Contact points with tungsten carbide ball 2 mm Ø.
- Dial adjustable by knurled bezel.
- Supplied in a convenient box with transparent lid with 1 stem Ø 1/4" and 1 spanner for changing the contact points.

Technical data for Inch Reading Dial Test Indicators Lever Type

Model	Reading	Range	Dial reading	Bezel-Ø	Form to DIN 2270	Length of contact point
K 30 Z	.0005"	.030"	0-15-0	1 1/4"	A	.476"
K 30/1 Z	.0005"	.040"	0-20-0	1 1/4"	A	.665"
K 31 Z	.0005"	.030"	0-15-0	1 1/4"	B	.476"
K 32 Z	.0005"	.030"	0-15-0	1 1/4"	C	.476"
K 33 Z	.0005"	.020"	0-10-0	1 1/4"	A	1.429"
K 34 Z	.0005"	.020"	0-10-0	1 1/4"	B	1.429"
K 35 Z	.0005"	.020"	0-10-0	1 1/4"	C	1.429"
K 36 Z	.0001"	.008"	0-4-0	1 1/4"	A	.511"
K 37 Z	.0001"	.008"	0-4-0	1 1/4"	B	.511"
K 38 Z	.0001"	.008"	0-4-0	1 1/4"	C	.511"
K 40 Z	.0005"	.030"	0-15-0	1 9/16"	A	.476"
K 40/1 Z	.0005"	.040"	0-20-0	1 9/16"	A	.665"
K 41 Z	.0005"	.030"	0-15-0	1 9/16"	B	.476"
K 42 Z	.0005"	.030"	0-15-0	1 9/16"	C	.476"
K 43 Z	.0005"	.020"	0-10-0	1 9/16"	A	1.429"
K 44 Z	.0005"	.020"	0-10-0	1 9/16"	B	1.429"
K 45 Z	.0005"	.020"	0-10-0	1 9/16"	C	1.429"
K 46 Z	.0001"	.008"	0-4-0	1 9/16"	A	.511"
K 47 Z	.0001"	.008"	0-4-0	1 9/16"	B	.511"
K 48 Z	.0001"	.008"	0-4-0	1 9/16"	C	.511"
K 40 Z AD	.0005"	.030"	0-15-0	1 9/16"	A	.476"
K 43 Z AD	.0005"	.020"	0-10-0	1 9/16"	A	1.429"
K 46 Z AD	.0001"	.008"	0-4-0	1 9/16"	A	.511"

Dial Test Indicators adding 'AD' in the model designation possess a water-protected dial casing. The transparent front cover, made of knock resistant plastic, produces a good seal of the dial casing only conforming to protection class IP 53. Another advantage of this design is that the anti-reflective coating of the front cover reduces shadows on the dial face and makes the Dial Test Indicators easy to read even at awkward angles.

Form A = Horizontal Type

Form B = Parallel Type

Form C = Vertical Type



## Dial Test Indicator K 30 Z

## Dial Test Indicator K 46 Z

The friction clutch mechanism of these Dial Test Indicators provides a very effective shockproof system. Standard versions are equipped with contact points having a tungsten carbide ball of 2 mm diameter. On request contact points with ball diameters 1 mm or 3 mm can be fitted.

Standard equipment includes: 1 contact point with tungsten carbide ball 2 mm Ø, 1 stem  $1/4$ " Ø and 1 spanner for changing the contact points.

Dial Test Indicator K 30 Z	
Reading	.0005"
Range	.030"
Dial reading	0-15-0
Bezel-Ø	1 $1/4$ "
Form to DIN 2270	A
Accuracy analogous to	DIN 2270
Measuring force	0.07 N ± 20%
Length of contact point	.476"
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	same as K 30 on page 93, but L = .445"

Dial Test Indicator K 46 Z	
Reading	.0001"
Range	.008"
Dial reading	0-4-0
Bezel-Ø	1 $9/16$ "
Form to DIN 2270	A
Accuracy analogous to	DIN 2270
Measuring force	0.15 N ± 20%
Length of contact point	.511"
Swivelling range of contact point at 90° to the scale	240°
Dimensioned drawing	same as K 46 on page 93, but L = .480"



Dial Test Indicators are also available with measuring range extended to .04". Please request our offers for the models K 30/1 Z and K 40/1 Z.

## Dial Test Indicator K 34 Z

## Dial Test Indicator K 45 Z

The Dial Test Indicators K 34 Z and K 45 Z have a 1.4" long contact point which makes them suitable for difficult accessible applications.

Please make sure to use contact points with correct length because of the effect of the angle ratio of the Dial Test Indicator. Using contact points with incorrect length will result in measuring errors.

Standard equipment includes: 1 contact point with 2 mm Ø tungsten carbide ball, 1 stem  $\frac{1}{4}$ " Ø and 1 spanner for changing the contact points.

Dial Test Indicator K 34 Z	
Reading	.0005"
Range	.020"
Dial reading	0-10-0
Bezel-Ø	1 $\frac{1}{4}$ "
Form to DIN 2270	B
Accuracy analogous to	DIN 2270
Measuring force	0.07 N ± 20%
Length of contact point	1.429"
Swivelling range of contact point parallel to the scale	240°
Dimensioned drawing	same as K 34 on page 93, but L = 1.398"

Dial Test Indicator K 45 Z	
Reading	.0005"
Range	.020"
Dial reading	0-10-0
Bezel-Ø	1 $\frac{9}{16}$ "
Form to DIN 2270	C
Accuracy analogous to	DIN 2270
Measuring force	0.05 N ± 20%
Length of contact point	1.429"
Swivelling range of contact point perpendicular to the scale	240°
Dimensioned drawing	same as K 45 on page 93, but L = 1.394"



## Accessories for Inch Dial Test Indicators

### Stems with dovetail



2.4807 Ø 1/4" h6



2.4806 Ø 3/8" h6



2.4816 Ø 8 mm h6,  
swivelling range ± 40°

### Contact points thread M 1.6 length .450"



5.2287 Tungsten carbide ball Ø 2 mm, L = .476"



5.2288 Tungsten carbide ball Ø 1 mm, L = .457"



5.2289 Tungsten carbide ball Ø 3 mm, L = .496"

### Contact points thread M 1.6 length 1.400"



5.2290 Tungsten carbide ball Ø 2 mm, L = 1.429"



5.2291 Tungsten carbide ball Ø 1 mm, L = 1.409"



5.2292 Tungsten carbide ball Ø 3 mm, L = 1.449"

### Contact points thread M 1.6 length .490"



5.2293 Tungsten carbide ball Ø 2 mm, L = .511"



5.2294 Tungsten carbide ball Ø 1 mm, L = .492"



5.2295 Tungsten carbide ball Ø 3 mm, L = .531"

### Centering Holder FH 8

Stem Ø 8 mm h6  
with mounting bore Ø 4 mm H7 and dovetail clamp  
Additional mounting bore Ø 8 mm H7



### Round Holder FH 90

8 mm Ø x 90 mm  
with mounting bore Ø 8 mm H7  
and dovetail clamp



### Square Holder 1.0958

6 x 12 x 72 mm  
with mounting bore Ø 4 mm H7  
and Ø 8 mm H7 and dovetail clamp



### Spanner 3.1483

