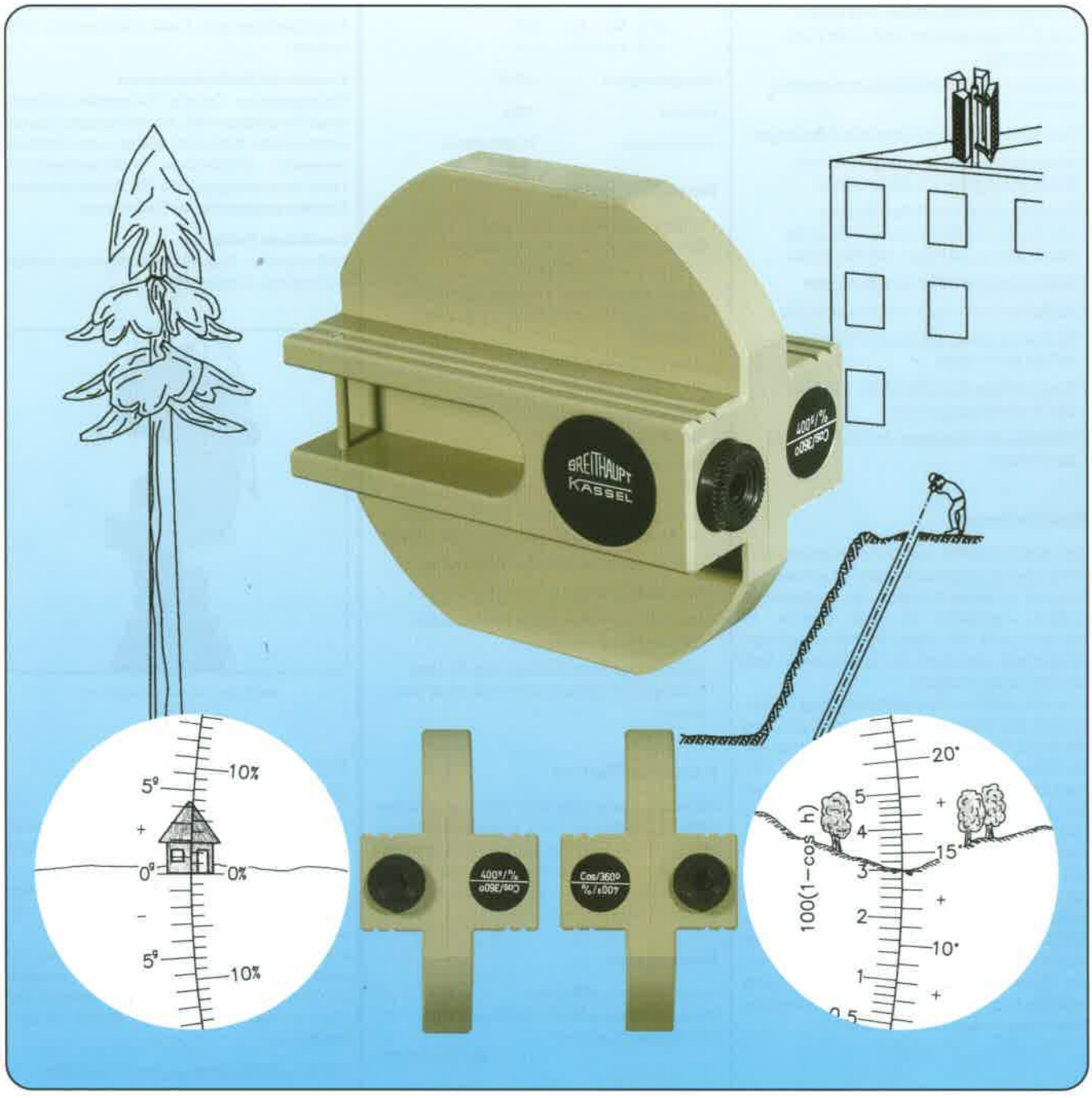
Necli

Optischer
Handgefällmesser



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Necli

Optical Hand Clinometer
liquid damped

Field of Application:

The optical hand clinometer is a compact precision instrument for quick and easy measuring of the inclinations of lines of sight. This most universal surveying instrument is i. a. applicable for:

- Levelling of low accuracy (as automatic level
- Survey of cross sections
- Reduction of inclined distance to the horizontal
- Determination of the heights of buildings, trees, long distance lines (sag measurements)
- Tracing of lines with given nominal and maximum inclination
- Project work of architects, road and irrigation enginers
- Geological, mining work in the blasting and drilling techniques
- Forestal measurements e. g. road-making and hydraulic structures
- Military inclination measurements by artillery and pioneers (Model No 7029)

Description:

The main components of the BREITHAUPT optical hand clinometer NECLI are a refracted ray telescope and a transparent graduated circle, positioned in the image plane of the telescope. The circle is oriented by a pendulum to the direction of gravity regardless of the inclination of the telescope. Oscillations of the circle are liquid damped to assure instant measuring without loss of time. Since the circle is fully enclosed, measurements are not affected by wind.

Two of these graduations and the image of the object appear **simultaneously** in the field of view of the telescope. The centesimal graduation and the graduation in per cent appear in the first position (eyepiece l. h. side), while the sexagesimal and the reduction scale appear in the second posiion (eyepiece r. h. side). The graduations are marked by symbols, thus eliminating confusion.

Tender Specifications:

Optical hand clinometer with four different graduations (400^g/percent; reduction/360°) liquid-damped with simultaneous reading of target and scale in eyepiece, circle dia. 46 mm, measuring accuracy ± 0,2°, complete in plastic pouch with carrying cord.

Technical Data:

Graduation of circel	46 mm dia.
Scales	
360°/400^g	± 90°/± 100^g
Graduation interval	1°/1^g
Estimation	0,1°/0,1^g
Percent scale	± 150%
Graduation interval	
± 20%	1%
± 20% upto ± 120%	2%
± 120% upto ± 150%	5%
Reduction scale	± 50
Graduation interval	
0 upto ± 0,1	± 0,02
± 0,1 upto ± 1	± 0,1
± 1 upto ± 5	± 0,2
± 5 upto ± 20	± 0,5
± 20 upto ± 50	± 1
Measuring accuracy	± 0,2°
Weight	0,350 kg
Dimensions	8,5 x 8 x 4,6 cm

Distinctive Advantages:

- The graduations appear in the field of view of the telescope **simultaneously** with the image of the object, thus facilitating a direct reading.
- Fast precise reading of scales and target due to liquid damping and precision of circle.
- The circle of the optical hand clinometer is provided with four different graduations (400^g/per cent; reduction/360°), each applicable for surveys according to respective requirements. Measuring of the inclination with either sexagesimal (360°) or centesimal (400^g) graduation.
- Determination of heights (e.g. buildings, trees), distances and inclinations with graduation in per cent.
- Reduction of inclined distances to the horizontal with graduation in 100 (1-cos h).
- Automatic levelling with zero line. NECLI supplied with detailled instruction manual, listing numerous examples of application.
- High measuring accuracy (± 0,2°)
- Insensitive against wind.

Ordering Data:

	NO. CODE
Optical Hand Clinometer liquid damped, with four graduations (400^g, %, cos h, 360°) in plastic pouch.	7028 NECLI
Optical Hand Clinometer (Military Version) liquid damped, with four graduations (400^g, %, 6400$^-$, 360°) in plastic pouch.	7029 NECLI

Manufacturing program:

Levelling instruments:
Quickset Levels, Builder's Levels, Engineer's Levels, Automatic Engineer's Levels, Precision Levels.

Theodolites:
Surveying Instrument Systems for Training Purposes, Builder's Theodolites, Compass Theodolites, Repetition Scale Theodolites, Double Center Theodolites, Mining Suspension Theodolites, Pilot Balloon Theodolites.

Topographical Instruments:
Optical Hand Clinometers, Telescopic Alidades, Plane Table Equipments, Plane Table Tacheometers, Topographical Range Finders.

Magnetic Compasses:
Geological Compasses, Stratum Compasses, Prismatic Compasses, Mining Compasses, Orientation Compasses.

Geodetic Special Instruments:
Clinometers, Level Quadrants, Optical Track Levelling Equipments, Universal Optical Track Measuring Instruments, Alignment Telescopes, Laser Profile Measuring Instruments, Optical Precision Plumbing Instruments, Laser Field of View Measuring Equipments.

Geodetic Testing Instruments:
Testing Instruments for Graduated Circles, Double Image Comparators, Collimators and Adjusting Stands, Spirit Level Testing Instruments.

Experience and technical know-how accomplished in more than 225 years

More than 400 000 BREITHAUPT surveying instruments are succesfully used by engineers and scientists in 120 countries. The comprehensive manufacturing program comprises the instrument that matches its intended special application.
Continuous development of our products built on experience, advice of the practising surveyor and coupled with latest production techniques, guarantee a maximum of quality, reliability and precision to the benefit of our customers throughout the world.

BREITHAUPT sets the marks of accuracy and excellence.

Dr. 977/88