



545 Series Multipurpose Precision Sight Level

The Level that thinks it's an Alignment Telescope

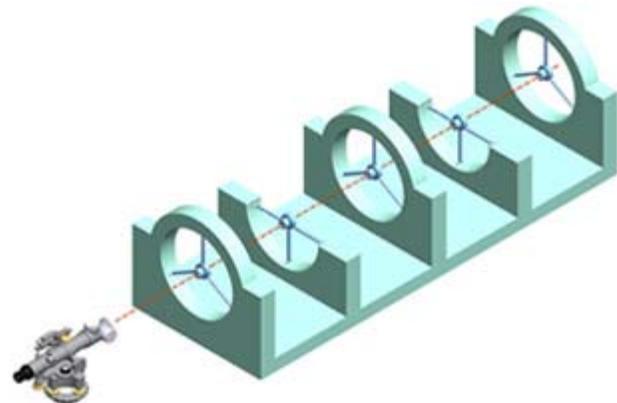
Our **545 Series** may be configured as a Precision Sight Level or as an Alignment Level, simply by exchanging the micrometer on the telescope. Both level configurations combine precision operation with rugged reliability to execute the most demanding leveling jobs.

545-190, 545-190M Precision Sight Levels: The 545-190 (or the metric version, 545-190M) comes standard with a single axis optical micrometer, giving you precise control of any object being evaluated to gravity level within a 360° circle around the instrument. These instruments provide a means of easily leveling all types of machinery and equipment, evaluating the orientation of tables, ways, sole plates, rollers, shafts, etc. The 545-190 is classified as National Stock Number (NSN) 6675-00-509-5586.



545-160, 545-160M Alignment Levels: The 545-160 (or the metric version, 545-160M) comes standard with a dual axis micrometer, combining many of the capabilities of our alignment telescopes with our precision sight level. The dual axis micrometer allows you to measure deviations from the line of sight in both the horizontal and vertical directions simultaneously. These models provide a means of easily combining two types of measurements - level and straightness - in one instrument. This is beneficial for applications such as bore alignments for drive systems, turbine alignments, gearboxes, extruders, engine bearing lands and laboratory optical paths. The 545-160/545-160M is an effective configuration when large mechanical components must be set level as well as straight.

Right: An engine frame alignment where the bearing centerline must be evaluated for straightness as well as level. Many rotating machine components have these combined alignment requirements.



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Precision leveling. All 545 models give you the ability to establish a line of sight which is extremely level. The two-speed telescope tilting screw has a coarse thread to get you in the ballpark quickly, and a fine thread for those precise adjustments which bring you into perfect level. In addition, a coincidence-type level with 2.5 times magnification optically "folds" both ends of the precision level vial's bubble together, enabling you to detect the tiniest deviation from level. One arcsecond of tilt is discernible using this "coincidence" vial methodology.



No



Yes

All configurations of this instrument include a telescope having adjustments to maintain the line of sight straight throughout a focusing range of two inches to infinity, allowing the instrument to be located in the tightest of setups. This straightness is maintained at ± 0.001 " (0.025mm) from two inches to 17 feet (50.8mm to 5.2m) and one arcsecond from 17 feet to infinity. The main telescope tube has a removable section to facilitate conversion for autocollimation, autoprojection, or installation of a right angle eyepiece. The optical micrometer produces repeatable readings with a resolution of 0.001" (0.025mm).



**Filar/bifilar
reticle pattern**

The reticle's filar/bifilar pattern makes for easy use with our optical tooling scales, or during collimation and autocollimation procedures. The horizontal axis pivots directly over the vertical axis, making the change in plane height less than 0.0001" for tilts up to 5 arc minutes either above or below horizontal. This important feature eliminates the need to perform the time-consuming precision plumbing procedure for leveling projects. All 545 models use high quality base components and leveling vials similar in design to our model 76-RH transit, allowing this instrument to sweep precise planes. For rough leveling, the unit has a circular level vial mounted on the base.

Our extreme attention to engineering details means that you can take measurements with accuracies that are difficult to achieve by conventional mechanical methods. Read more about our levels for additional specific information on their many features and uses.

Available with no micrometer if desired.

To order the 545 instrument without any micrometer, use model number 545-1. You may wish to do this, for example, if you already own one of our 190, 190M, 160, or 160M optical micrometers.

Specifications

Telescope Length: 16" (40.6 cm), with 190 micrometer installed

Magnification: 20X at 2" from objective; 30X at infinity

Field of View: 1 degree

Image: Erect

Optics: Low reflective, protective coating

Effective aperture: 1.34"

Reticle: Glass, filar/bi-filar pattern (others available)

Focusing Range: 2" (5.1 cm) to infinity

Bearings: Ball type with a runout of 0.000025" or less

Finish: Two part, gray polyurethane enamel (textured)

Approximate Weight: 545-1, 16.4 pounds (7.4 kg); 190, 1 lb (.45kg); instruments and case, 36.6 pounds (16.6 kg)

Case: Plastic case with foam cushions to provide all-around support for the instrument

Includes adjusting pins, instruction booklet, and plastic cover.

May be used with...

- 160-x Series Coordinate Optical Micrometers
- 186 Plastic Autoreflexion Target
- 188 Glass Autoreflexion Target
- 190-x Series Optical Micrometers
- 193 Right Angle Swivel Eyepiece (discontinued)
- 193-L Right Angle Swivel Eyepiece, Illuminated Adapter
- 196-1 Combination Projection, Auto-Collimation, Fixed Right Angle Eyepiece Unit (Must be installed at the factory)