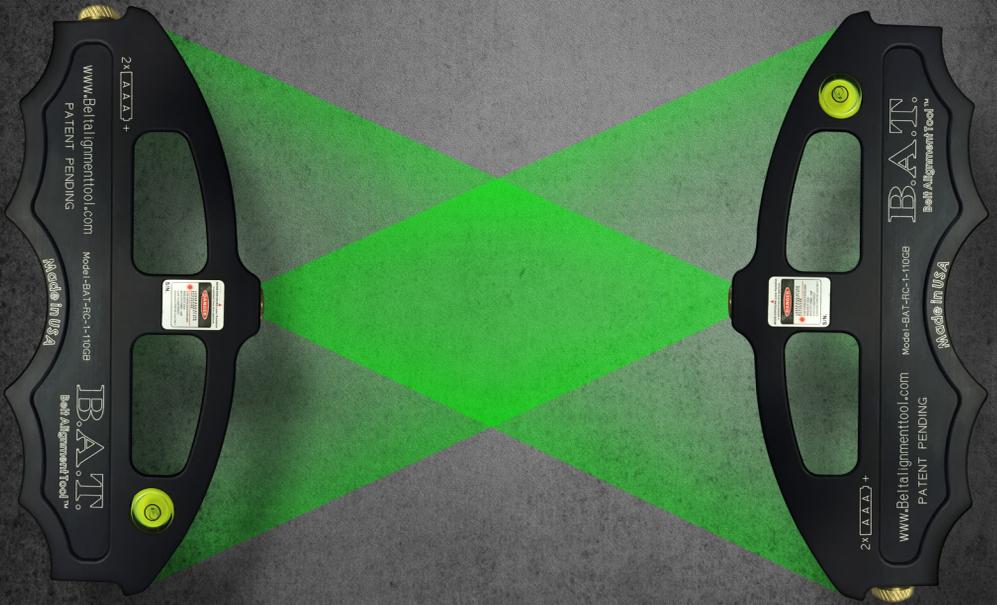




BELTALIGNMENTTOOL.COM





## B.A.T. Belt Alignment Tool®

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### FEATURING:

#### Dual Cross-firing Laser Technology

For the fastest most accurate alignment available.

#### Bright GlowLine™ Arc Target Surfaces

For fast, easy set up and alignment of belts, sheaves, flat surfaces, etc.

The arc laser target line is true and easily read in all conditions.

#### Offset Alignment Capability Standard

Using included Double Sided Magnetic GlowLine™ Targets

For multi-width sheave applications.

#### Other Visual Measurement Applications Including:

Level, Base Flatness, Base Level, Multiple Pulleys,

Conveyor Rolls, Take-Up Rolls, Banking Rollers, etc.



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## Introduction

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The B.A.T. Belt/Sheave Alignment System is configurable to meet any field condition or application.

- Belts, pulleys, sheaves, sprockets, gear trains, rollers, conveyance, even base flatness verification and other measurements can be performed.
- Compared to the other systems the B.A.T. is the only cross-firing laser system, which increases both speed and accuracy of the alignment task in a one step process.
- The B.A.T. has a face mounted, "Bulls Eye" leveling vial to check surfaces for flatness and level conditions with combinations of B.A.T. lasers and GlowLine™ Targets.
- Multiple target and laser configurations are available to meet any requirement.
- Save energy, reduce downtime, improve performance, and save installation, maintenance and repair costs by putting this unique and innovative tool to work for you!



## Description

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### Component Descriptions:

#### XF Cross-fire Dual B.A.T. Belt Alignment Tool® Kit:

Two Arc Shaped Laser Emitters, Featuring GlowLine™ target faces, three double sided GlowLine™ magnetic targets, and measurement dividers for offset.  
Target increments are .082" or approximately 1/10th of an inch.

\*All products are shipped in a custom foam filled carry case.

#### Green Line Laser Description and Rating:

The B.A.T. tool system is powered by an FDA Class 111a/ANSI Class 3R green line < 5mW nominal laser module. A laser use safety warning label is affixed to each unit.  
Lasers comply with 21 CFR, parts 1040.10 and 1040.11.



## How To Use

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### Belt Alignment Pre-Check:

1. Observe all safety guidelines, lock out and tag out equipment to be aligned. Verify lock out, and follow all applicable plant safety policies and procedures.
2. Make sure equipment is at "ZMS" or Zero Mechanical State.
3. Inspect machinery for wear, looseness, deterioration, cracking, etc.
4. Check bases, foundations, and motor bolts for soft foot conditions.
5. Check pulley/sheaves, and drive belts for wear and replace as required.
6. Check sheave/pulley's for wobble and run-out notes. Cross-firing lasers can be used to indicate shaft/drive issues.



## Dual Cross-firing Laser Alignment Method:

1. Magnetically affix a B.A.T. laser module to each sheave or pulley, with laser emitters pointing at the opposing sheave/ B.A.T. laser module.
2. Turn each laser module on by turning the battery knob clockwise. The Green line laser should now be visible.
3. Align the laser lines to the center white target lines: The green line laser should be visible on the opposing B.A.T. target face. Observe target faces, observe the offset and angular alignments. If a green line laser is not visible on white center target faces, see the below rough alignment procedure or see the offset alignment procedures described herein.
4. Rough corrections can be made by aiming the lasers on floors, ceilings, etc. crossing the beams and observing the beam angles. Then, align laser lines on these alternate surfaces. Now, re-aim the lasers at the B.A.T. targets for final correction.
5. Make corrections by moving the moveable pulley system until the laser lines fall onto the white middle of the both B.A.T. GlowLine™ Target surfaces.
6. Confirm belt tensioning prior to returning equipment to normal service.



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## Offset Laser Alignment:

In cases where there is a difference in sheave/pulley wall thickness, use the included mechanical divider tool, flat washers and double sided magnetic targets.

1. Place a B.A.T. Laser Tool on the "Offset" or the pulley with the widest rim face.
2. Using two of the double sided magnetic targets, affix a provided flat washer to each. Then affix these assemblies (washer side) to two of the magnets on the B.A.T. Laser Tool. Choose the two opposing magnets that best fits the size of your sheave face. Now affix the B.A.T. , washer, Target assembly onto the opposing sheave face.
3. Now on the offset sheave measure the "Offset". Using the provided dividers measure from the center of the 1st sheave groove to the center white line of the B.A.T. This measurement is the "Offset Value".
4. Using this "Offset Value" place the dividers on the center of the opposing sheave 1st sheave groove and observe which line on the B.A.T. system the dividers point to. This is the desired target line for proper sheave alignment.
5. Now Align as described in Dual Crossfire Procedure.



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## Three Target Laser Alignment Method:

Although not as fast or accurate as the "Fast Cross-Firing Method" at times it may not be possible to use a B.A.T. laser emitter on both sheaves, in this case it may be necessary to use the three provided "puck" targets.

1. Magnetically affix one B.A.T. laser module to one sheave, with the laser emitter pointing at the opposing sheave.
2. Place the three GlowLine™ "puck" targets on the opposing pulley/sheave 90 degrees apart on the pulley/sheave face.
3. Turn the laser module on by turning the battery knob clockwise. The Green laser should now be visible on the GlowLine™ Targets.
4. Align sheaves using the lasers and targets. The green line laser should be visible on the opposing GlowLine™ Targets. Observe target faces to confirm the angular misalignment.
5. Make corrections by moving the moveable pulley system so the laser falls onto the white middle target line of all three GlowLine™ puck targets.



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## Measuring Level and Base Flatness:

1. Make sure your surfaces are clean and free of debris.
2. Inspect the base mountings for proper bolting, surface deformation, bending, cracking, soft foot, failed concrete or grouting, etc.
3. The B.A.T. should be placed flat on the base or surface to be measured. If the surface area is too small you may use the GlowLine™ targets affixed to the B.A.T. or fabricate “standoff blocks” for your application.
4. Place the B.A.T. laser on one corner or location of the measured area.
5. Place the other B.A.T. or the GlowLine™ targets on opposing locations.
6. **FLATNESS ONLY CONDITION:** Observe the vial and the GlowLine™ targets, if the vial is out of the “Bull Eye” but the laser is on the center white line on the GlowLine™ targets. The base is flat but NOT level. This condition MAY or MAY NOT be satisfactory.
7. **LEVEL AND FLAT CONDITION:** Observe the vial and if the vial is in the “Bulls Eye” and the laser is on the center white line on the GlowLine™ targets, the base is flat AND level.



## Maintenance:

Maintenance of the B.A.T. and associated components consists of primarily cleaning, and battery replacement. The fused glass protective lens on the laser emitter is cleaned easily with a soft cloth or swab with any glass cleaner. Cleaning of the targets is achieved with a damp cloth; use no solvents or other cleaning solutions.

## Calibration:

The B.A.T. Laser Emitters and all targets are calibrated in our production facility. Calibration is recommended every two years. Or as your company policy requires.

## Batteries:

Two "AAA" batteries are required to power the B.A.T. laser emitter.

1. Remove the batteries by turning the battery nut clockwise and tipping battery port down. The batteries will slide out of the tool. Shake tool downward to remove batteries if they do not fall out.
2. Remove batteries when not in use and during storage to prevent damage to the tool. Damage from leaking or failed batteries is NOT covered under the warranty.
3. Install replacement batteries, Note: Alkaline batteries only! Typical battery life is 4 to 6 hours. Keep spare batteries in the B.A.T. carry case.



## Technical Specifications:

Target Dimensions:	4.125" x 9.500" x .750"
Weight:	28.8 oz.
Laser Line Width:	< 2.5mm @ 5M
Beam Angle 110°:	70" @ 3 Feet, 162" @ 8 Feet
Accuracy:	.020" @ 8 feet
Pulley Size Range:	Any
Belt Size Range:	Any < 75'
Operating Range:	< 75 Feet
Circular Vial:"	45 Min/.1"
Laser Type:	Green Line Laser-Class IIIa / 3R = < 5.0 mW @ 532nm
B.A.T.® / Glow Line/Targets:	6061 Flat Black Anodized Aluminum
Targets:	1.00" diameter x .750" length- fixed
Magnets:	Chrome Plated Rare Earth
Power:	Qty. 2 Size "AAA" Batteries (6 hrs.)
IP Rating:	IP 64 With battery knob fully engaged.

## Safety and Use:

- The B.A.T. tool system is powered by an FDA Class 111a/ANSI Class 3R green line < 5mW nominal laser module. A laser use safety warning label is affixed to each unit. B.A.T. Lasers comply with 21 CFR, parts 1040.10 and 1040.11.
- NEVER! Look or stare into any laser beam!
- Use the B.A.T. and accessories only for intended purpose.
- Follow safety policies and procedures in accordance with FDA Class 111a/ANSI Class 3R laser devices.
- Magnets: Each magnet used in the B.A.T. is a 13 pound pull and set up in an opposing polarity. Use of non B.A.T. components may result in, product failure or inaccurate results. Use only with B.A.T. approved products and accessories.



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