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Belt Pulley Laser Alignment Tool

LK-15000C

CE CE-Conformity according to the directives 2014/30/EU, 2014/35/EU, Ex 2014/34/EU

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- Precise alignment, stable power transmission, energy saving and carbon reduction!
- Magnetic design for portability, intuitive use, and precision performance.
- Compatible with all types of pulleys — no limitations on grooves or tooth profiles.
- The circular 360° level solves angular misalignment of vertical transmission.
- Adjustable calibrators addresses eccentric misalignment issues for pulleys of varying widths.
- Misalignment pulley installation can cause belt deviation, rapid wear, and power loss.
- Accurate pulley alignment reduces mechanical vibration, noise, while minimizing the risk of damage to other components.

Horizontal Drivetrain

Vertical Drive System

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LK-15000C Alignment Tool Instructions LK-15000C

1. Place the GAINER LK-15000C Belt Pulley Alignment Tool on the pulley (A) by the motor side.
2. Measure the width deviation of the two pulleys and adjust the reference point of the alignment calibrators accordingly.
3. Position the three calibrators at the 3, 6, and 12 o'clock positions on Pulley (B).
4. Turn on the power and project the LK-15000C laser beam onto the calibration targets.
5. Inspect the circular 360° level and the laser position on the targets, then adjust the pulleys until proper alignment is achieved.

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Adjustable Alignment Calibrators

The adjustable alignment calibrator is designed to compensate for alignment offsets when the two pulleys have different widths. When both pulleys are of equal width, the calibration scale should be set to “0”, which represents the true alignment reference point (see Figure 1). If the pulley widths differ, please refer to the offset compensation solutions for pulleys with unequal widths, as shown in Figures 2 and 3.

Offset Compensation Solutions for Pulleys with Unequal Widths

Description of drawing symbols:

A = driving pulley
B = driven pulley
W= pulley edge width

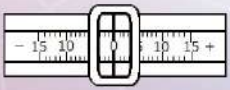

Figure 1

Example1

AW-BW=+5mm
driving pulley width - driven pulley width=+5mm
The scale +5 on the calibrator is the actual centering point.
As shown in the figure2.

Example 2

AW-BW=-5mm
driving pulley width - driven pulley width=-5mm
The scale -5 on the calibrator is the actual centering point.
As shown in the figure3.

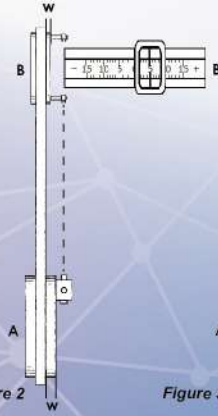

Figure 2

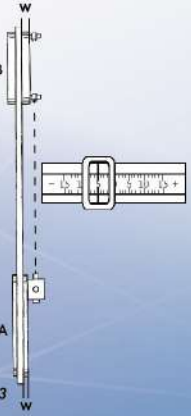

Figure 3

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Pulley Misalignment Types and Solutions

Horizontal Angular Misalignment / Shafts Are Not Parallel

➤ Reinstall or reposition the pulleys. Inspect the alignment calibrator and adjust until proper alignment is achieved.

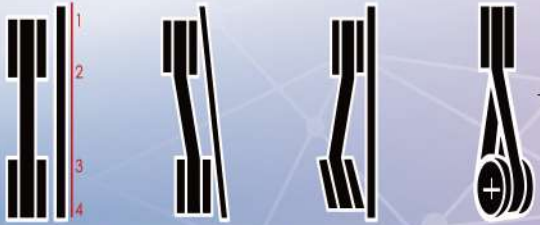
Axial Angular Misalignment / Shafts Are Not Parallel

➤ Adjust the mounting or height of the motor or driven machinery. Inspect the alignment calibrator and adjust until proper alignment is achieved.

Twist Misalignment / Combination of Horizontal and Axial Angular Misalignment / Shafts and Pulleys Are Not Parallel

➤ Adjust the parallelism of the shafts. Inspect the 360° circular level and alignment calibrator, then adjust until proper alignment is achieved.

Types of Pulley Misalignment



Standard Alignment | Horizontal Misalignment | Axial Misalignment | Twist Misalignment

Pulley Alignment Tolerances

Timing belt Pulley 0.25° (1/4 degree) 1 mm mark on the calibrators.

V belt Pulley 05° (1/2 degree) 2 mm mark on the calibrators.

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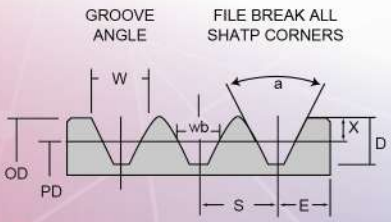
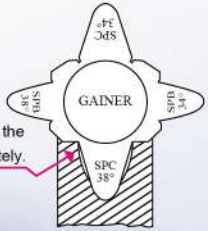
Belt Pulley Laser Alignment Tool LK-15000C



If the pulley wear exceeds 0.5 mm, the pulley should be replaced immediately.

GAINER Pulley Gauge



Standard Pulleys

Belt Section	P.D. Range	a Groove angle +/-0.5°	W +0.2/0mm	Wb	D +0.6/-0mm	X +0.3/-0mm	S¹ +/-0.2mm	Sum of deviations of S²	E +/0.3mm
SPZ	Up to 80 Over 80	34 38	9.7	8.5	11	2	12	+/-0.6mm	8
SPA	Up to 118 Over 118	34 38	12.7	11	13.8	2.75	15	+/-0.6mm	10
SPB	Up to 190 Over 190	34 38	16.2	14	17.5	3.5	19	+/-0.8mm	12.5
SPC	Up to 315 Over 315	34 38	22	19	23.8	4.8	25.5	+/-1mm	17

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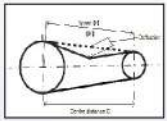

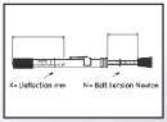

GAINER Belt Tension Meter

$$t = \text{Spanl [mm]} \qquad \sqrt{C^2 - \frac{(D_p - d_p)^2}{4}}$$

$$k = \text{Deflection [mm]} \qquad \frac{t \times 16}{1000}$$

Small Pulley	N (Belt Tension Newton)																	
d_p	SPZ/3V		SPA		SPB/5V		SPC		8V		XPZ/3VX		XPA		XPB/5VX		XPC	
(mm)	Kmin	Kmax	Kmin	Kmax	Kmin	Kmax	Kmin	Kmax	Kmin	Kmax	Kmin	Kmax	Kmin	Kmax	Kmin	Kmax	Kmin	Kmax
50											12	16						
56											13	18						
63	9	13									15	20	14	20				
71	11	15									16	21	17	23				
80	12	17									17	23	20	27				
90	14	19	14	20							18	24	23	31				
100	15	21	17	23							19	25	25	33	29	39		
112	16	22	20	26							19	26	27	36	34	45		
125	17	23	22	30							20	27	28	38	38	51		
140	18	24	24	32	27	37					20	27	30	40	42	56		
160	19	26	26	35	32	43					21	28	31	42	46	62	56	75
180	20	26	28	38	37	49					21	29	33	44	49	66	63	84
200	20	27	30	40	40	53							33	45	52	69	69	92
224	21	28	31	41	43	57	53	71					34	46	54	72	75	100
250			32	43	46	60	61	80							57	75	80	106
280			33	44	48	63	68	89							59	78	85	112
315			34	45	51	66	75	97	88	117					61	80	90	118
355					53	68	81	104	100	132					63	82	94	123
400					55	71	87	110	110	145							99	127
450					57	72	92	115	120	156							103	132
500					59	74	96	119	127	165							107	135
560							99	129	134	173							112	139
630							103	132	142	181								
710							106	135	148	187								
800							110	137	155	192								

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Specification sheet	
model	LK-15000C
Laser class	Class Ⅲ a
Output power	< 5mw
Wavelength	620-650nm RED
Line thickness	1mm
Measuring accuracy	θ< ±0.1°
Battery type	CR123A3V
Continuous use	42 hours
Relative Humidity	< 90%RH non-condensing
Temperature range	- 20 / +50 °C
Protection	IP40
Material	Aluminum alloy
Dimensions	L82xW42xH42mm
Weight	240g
360° circular level	Ø18mm *3pcs
Adjustable calibrator	Ø14X42mmL *3pcs
V Belt pulley gauge	SPZ、SPA、SPB、SPC
Belt tension meter	0-150N/0-351bs
Box dimensions	L235x W180xH70mm
Total weight	960g
Patent number	TWPAT.NO.M598949
	TWPAT.NO.M672486
	ZL 2020 2 0747333.1
Product specifications may be changed without prior notice.	

Safety Precautions

1. Do not operate the device in water.
2. Avoid pointing the laser beam directly into the eyes.
3. After use, ensure the device is powered off and remove the battery for safe storage.
4. Observe local regulations regarding the use of laser devices.
5. Do not disassemble any components. For any issues, please contact your local GAINER® distributor.
6. Any discarded components of this product must be disposed of in accordance with local safety and environmental regulations.
7. Customers in EU member states must adhere to EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).
8. To ensure compliance with aviation and maritime safety regulations, the shipment does not include batteries.

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