



INDUSTRIALHUB BD

RELIABILITY & ENGINEERING SERVICE PARTNER

LASER SHAFT ALIGNMENT TOOL

Laser alignment of coupled shafts: selection, set-up, measurement, correction and reporting.



How to use this guide

For maintenance and reliability engineers who choose, set up and use laser tools to align coupled shafts. Three parts: theory, a comparison of four systems, and the job itself.

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Theory

Pages 3 to 6. Why it pays, tolerances, methods, laser principle.

Systems

Pages 7 to 12. Selection guide, one page per maker.

The job

Pages 13 to 17. Foundation, steps, offset drives, faults, safety.

Brands

Pages 18 to 19. Global brands, cross-reference, comparison.

READING PATHS

Maintenance manager

Pages 3, 7, 18 to 20. Value of alignment, which system to buy, brands.

Plant engineer

Pages 4 to 6, 8 to 12, 14, 15. Theory, each system, offset drives.

Shift technician

Pages 13, 14, 16, 17. Preparation, steps, faults, safety.



Checking shaft alignment on an electric motor with a laser system and tablet

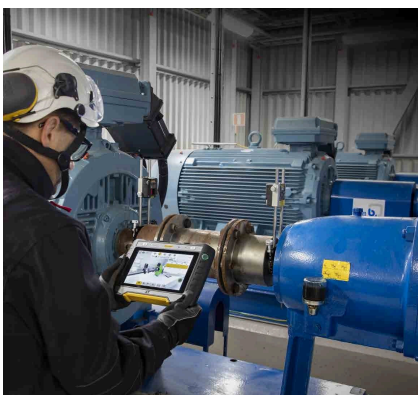
Data status

Theory and tolerances come from the SKF alignment chapter. Tool data comes from the Easy-Laser, Fluke and Schaeffler documents, paraphrased. Not stated means the documents we reviewed do not list it, not that the feature is missing. Photo usage rights must be confirmed before you publish.

Read this first: check values against current maker documents before you buy or use a tool. Lock out the machine, and never look into a laser beam.

Why alignment matters

Alignment of drives and driven machinery is an important job at installation and in maintenance. Poor alignment damages bearings and other parts, and the cost to align properly is small beside the cost of a failed critical machine.



Laser alignment on an electric motor

Longer bearing life

Aligned shafts keep bearing loads low.

Longer part life

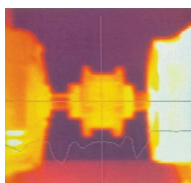
Less wear on belts, pulleys, couplings, seals.

Lower energy, noise

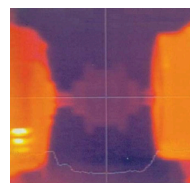
Less friction loss and vibration.

Less shaft bending

Lower vibration and stress levels.

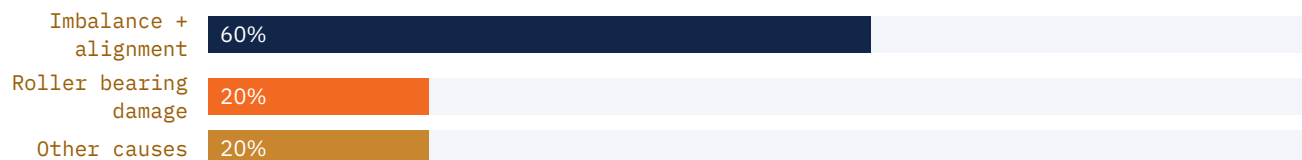


Misaligned: the coupling runs hotter



Aligned: a cooler, even coupling

CAUSES OF MACHINE FAILURE



ENERGY EXAMPLE: 1% LESS POWER, 8 H A DAY

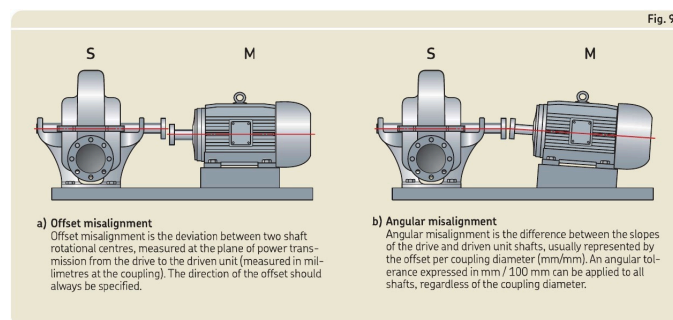
Motor output	75 kW	100 kW	200 kW
Annual energy cost	€37,440	€49,920	€99,840
Saving per machine at 1%	€374	€499	€998
Saving with six machines	€2,244	€2,994	€5,988

KEY NOTE • HOW IT WORKS

Shafts that are not in line force the coupling to flex on every turn. That extra load goes straight into the bearings, seals and coupling and shows up as heat, noise and vibration. Aligning once, correctly, removes that load, and a machine with less friction also draws less power. Keep an As Found and As Left record for every critical machine, so the next failure review starts with facts. The energy figures are a sample calculation; your tariff and running hours will differ.

Types of misalignment and conventions

All shafts rotate about a centre. Power transfers best when two connected shafts are collinear. Any deviation is misalignment, in two main types. One machine is stationary (S), the other movable (M).



Offset and angular misalignment between a stationary (S) and a movable (M) machine

Type	Definition
Offset (parallel)	Distance between the two shaft centres at the coupling, in mm. Always state the direction.
Angular	Difference between the slopes of the shafts, as offset per coupling diameter, in mm/100 mm.

Horizontal offset

Side to side, x-axis

Horizontal angularity

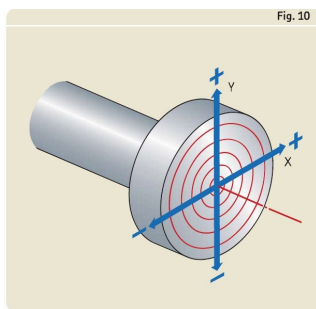
Side to side, x-axis

Vertical offset

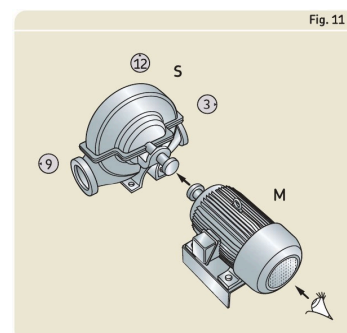
Up and down, y-axis

Vertical angularity

Up and down, y-axis



Measured in the horizontal (x) and vertical (y) planes



Clock positions seen from behind M, facing S

Position	Measures	Correct by
12 and 6 o'clock	Vertical misalignment, seen from the side	Height changes (shims) at the front and rear feet of M
9 and 3 o'clock	Horizontal misalignment, seen from above	Sliding M sideways

KEY NOTE · HOW IT WORKS

Offset is how far apart the two centre lines are. **Angularity** is how much they point away from each other. Both exist together, in both planes, so a good measurement gives all four values and none is guessed. Fixing one often changes the other, which is why you correct vertical with shims first and horizontal by sliding, then re-measure. If M is base- or bolt-bound, move S slightly to free the adjustment.

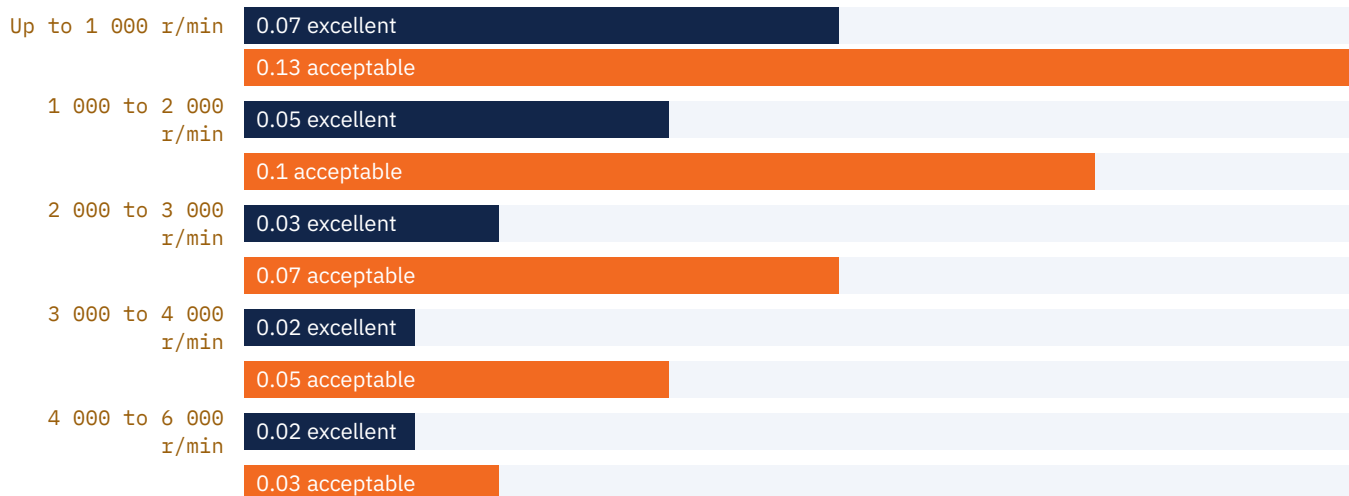
Alignment tolerances

The machine designer sets the accuracy. If no specification exists, SKF gives these commonly accepted values. They are a guide only and are based on speed, not on bearing type, machine size or equipment type.

GUIDELINES FOR SHAFT ALIGNMENT TOLERANCES

Speed (r/min)	Offset, excellent (mm)	Offset, acceptable (mm)	Angular, excellent (mm/100 mm)	Angular, acceptable (mm/100 mm)
Up to 1 000	0.07	0.13	0.06	0.10
1 000 to 2 000	0.05	0.10	0.05	0.08
2 000 to 3 000	0.03	0.07	0.04	0.07
3 000 to 4 000	0.02	0.05	0.03	0.06
4 000 to 6 000	below 0.02	0.03	below 0.03	0.05

OFFSET LIMIT BY SPEED (MM): FASTER MEANS TIGHTER



Thermal growth

Machines grow with heat. Designers may publish thermal offset values. Use them as the alignment target, and align when machine and foundation temperatures are stable.

Speed matters

Accurate alignment becomes more critical as speed rises. A gearbox target may depend on its arrangement and component functions.

KEY NOTE · HOW IT WORKS

A faster shaft crosses the same misalignment more times each second, so the bearings and coupling see a harder load. That is why the table tightens with speed. Use the coupling or machine maker's numbers first; this table is only the fallback when no specification exists. If the machine runs hot, set the designer's thermal offset as the target when cold, then re-check when the machine is at running temperature.

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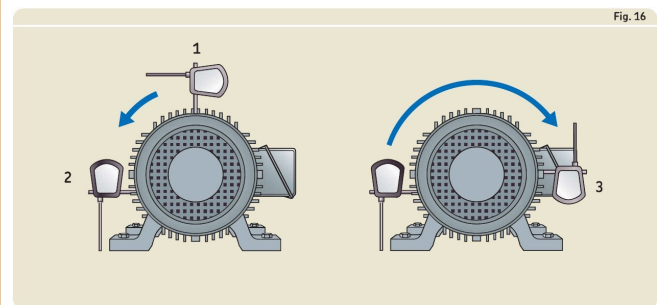
Alignment methods and how laser works

Laser equipment makes alignment faster and more accurate than any other method. SKF recommends laser technology whenever possible, and strongly recommends twin laser equipment.

Method	Use	Advantages	Limits
Straightedge, string, feeler gauge	Rough alignment	Simple; quick	Inaccurate; relies on the naked eye
Dial indicator, reverse rim	Precision, no laser available	Good accuracy; coupling stays in place	Needs skill; time-consuming; calculations
Dial indicator, rim-face	Runout; large couplings, limited space	Good accuracy	Needs skill; time-consuming
Single laser	Precision alignment	Accurate over short distances	Backlash affects uncoupled moves; re-measure after each move
Twin laser	Large and small shafts, up to 10 m	Excellent accuracy; live corrections; long distances	Closer units reduce angular accuracy



A laser tool measuring shafts on a motor



Rotating the measuring units through positions 1, 2 and 3

THE TYPICAL TWIN LASER SEQUENCE

- 1 Secure the measuring units to the shaft or coupling
- 2 Connect the display unit
- 3 Measure distances A, B and C and enter them
- 4 Set the measuring units and take readings at positions 1, 2 and 3
- 5 Read the machine feet adjustment and correct with shims or moves

KEY NOTE • HOW IT WORKS

A dial indicator reads one point at a time, and you do the sums. A twin laser reads the shaft position continuously and calculates offset and angularity for you, which removes the risk of missing a full turn of the dial. Heat, light and vibration can disturb any laser reading, so take the measurement again to confirm the alignment.

Which system do I need?

Match your machines to the systems. Suits means the maker document lists it. Check means the document hints at it, so confirm first.

Your job	Easy-Laser XT770	Fluke 831	LASER-EQUILIGN2	FAG EQUILIGN
Pump-motor and fan sets, horizontal	Suits	Suits	Suits	Suits
Three or more machines in a train	Suits	—	—	—
Vertical or flange-mounted pumps	Suits	Check	—	—
Cardan or offset drives	Suits	—	—	—
Shafts that cannot be rotated	Suits	Suits	—	Suits
Hazardous area (ATEX zone 1/21)	XT550 EX only	—	—	—
Large machines, long spans	Dot laser, up to 20 m	Range extendible	Range extendible	Range extendible
Flatness and geometry of bases	XT770 Shaft + GEO	—	—	—
New crews, quick training	Guided app	Guided tablet	Guided tablet	Keypad menu
Cloud and PC reporting	Easy-Laser PLUS cloud	ARC 4.0 over Wi-Fi	—	USB stick

CHOOSE IF

Easy-Laser XT770

you align trains, vertical or offset machines, or want one tool for many jobs.

Fluke 831

you want a guided tablet tool for routine horizontal jobs and PC reporting.

LASER-EQUILIGN2

you want a guided tablet with a traffic-light Live Move and a fast set-up.

FAG EQUILIGN

you already own it or need a rugged keypad unit. It is the earlier system.

KEY NOTE • HOW IT WORKS

Choose by the hardest machine you have, not the easiest. A tool that handles trains, vertical pumps or offset drives also handles simple horizontal sets, but the reverse is not true. Check the area class first: in these documents only the XT550 EX is rated for ATEX zone 1/21. A dash means the maker document does not state it.

Send us your machine list. We match the system, brackets and price to your shafts, couplings and area.

Easy-Laser XT family and modes

Swedish alignment specialist Easy-Laser builds twin-unit systems around two Bluetooth measuring units and an 8-inch display or your own phone or tablet. The XT770 is the top system.



XT770 units on brackets



XT12 8" display



XT770 in its case

System	Part no.	Measuring units	Programs
XT770 Shaft	12-1096	XT70, 2-axis detectors, dot laser	Horizontal, vertical/flange, trains, cardan*, EasyTrend*, 360° LIVE
XT770 Shaft + GEO	12-1128 / 12-1334	As XT770, plus XT20 or XT22 transmitter	Adds flatness and geometry of foundations and flanges
XT660 Shaft	12-1058	XT60, 1-axis detectors, dot laser	Horizontal, vertical/flange, trains of three machines, cardan*
XT550 EX Shaft	12-1031	XT50 EX, ATEX zone 1/21	Unlimited trains, adjustment guide; add an ecom Tab-Ex display
XT440 Shaft	12-0966	XT40, 30 mm 1-axis, line laser	Horizontal, vertical/flange; entry level

* Needs an extra bracket or program kit.

Units	XT40 (XT440)	XT60 (XT660)	XT70 (XT770)
Detector	TruePSD 30 mm, 1 axis	TruePSD 20×20 mm, 1 axis	TruePSD 20×20 mm, 2 axis
Laser, accuracy	Line, $\pm 5 \mu\text{m} \pm 1\%$	Dot, $\pm 1 \mu\text{m} \pm 1\%$	Dot, $\pm 1 \mu\text{m} \pm 1\%$
Range, protection	Up to 10 m, IP66/67	Up to 20 m, IP66/67	Up to 20 m, IP66/67

FIVE MEASURING MODES



Continuous sweep



Uncoupled sweep



Multipoint



EasyTurn



9-12-3

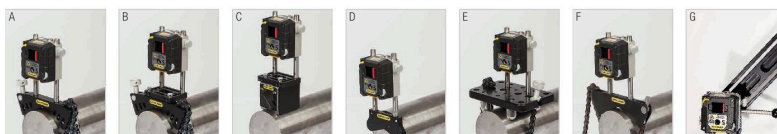
KEY NOTE • HOW IT WORKS

The detector reads where the laser beam lands. A 2-axis detector (XT70) sees the beam move in both directions at once, so it measures faster and copes with a larger starting error. The mode decides how far you must turn the shafts: sweep modes want a full turn, while multipoint and EasyTurn suit shafts that cannot make one. Modes depend on the hardware you buy, not the app.

Brackets and accessories

Brackets hold the units on the shaft or coupling. Brackets A, B and C ship as standard with the systems shown; the rest are accessories.

A. V-bracket (XT770/XT660/XT550/XT440)
B. Offset bracket (XT770)
C. Magnet base (XT770)
D. Magnetic bracket
E. Sliding bracket
F. Thin shaft bracket
G. Cardan bracket kit

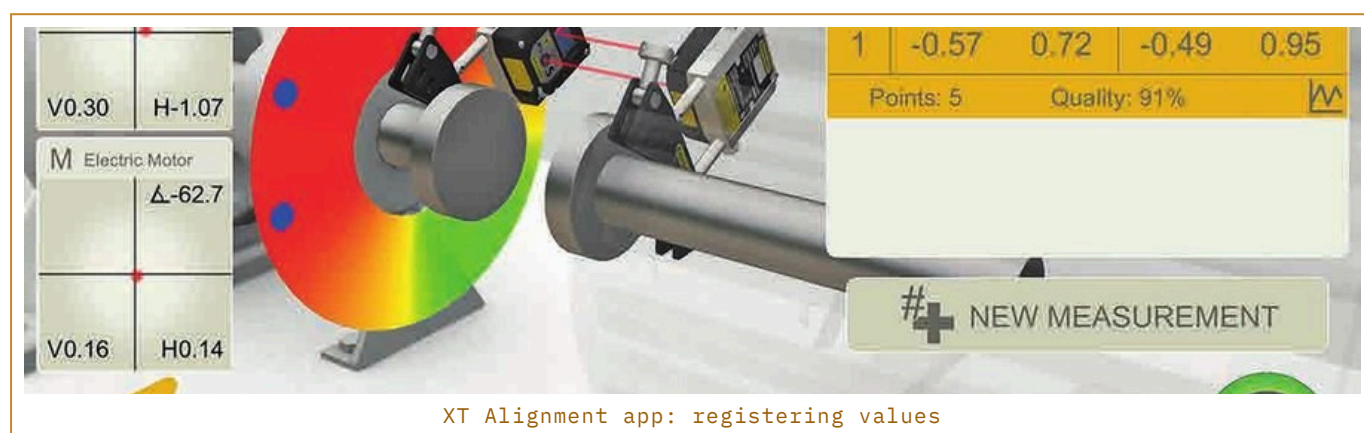


Shaft brackets: V-bracket, offset, magnet base, magnetic, sliding, thin shaft and cardan bracket kit

Bracket	Use
V-bracket with chain (12-0963)	Shafts 20 to 450 mm. Standard chain up to 150 mm; extension chain for larger shafts. Width 18 mm.
Thin V-bracket (12-1012)	Shafts 20 to 450 mm. Width 12 mm, for little room between coupling and machine.
Offset bracket (12-1008)	Allows axial displacement so the units rotate past projecting parts.
Sliding bracket (12-1010)	Shafts 90 to 600 mm. For shafts that cannot be rotated; standard chains.
Magnetic bracket (12-1147)	Axial mounting on flanges or shafts, with four super magnets.
Flange clamping bracket (12-1373)	Clamps on a flange edge, maximum clamping width 27 mm.
Cardan bracket kit (12-1151)	Needed for the cardan/offset program (page 15).

SHAFT DIAMETER COVERAGE (MM, SCALE 0 TO 600)

V-bracket + chain	20 to 450
Thin V-bracket	20 to 450
Sliding bracket	90 to 600



XT Alignment app: registering values

KEY NOTE • HOW IT WORKS

A bracket must grip the shaft rigidly and keep the units clear of guards and pipes, or the readings drift. Use the thin V-bracket where the coupling sits close to the machine, the offset bracket where parts project, and the sliding bracket where the shaft cannot rotate. Shafts above 150 mm need the extension chain.

Fluke 831 laser shaft alignment tool

The Fluke 831 is a single-laser, reflected-beam tool with an 8-inch handheld tablet. Prüftechnik, the pioneer of laser alignment, is now part of Fluke.



Fluke 831 in use on a motor and pump



Fluke 831 tablet, sensor and reflector



Align coupled shafts in four steps

Adaptive alignment Short flex, spacer shaft, single plane and uncoupled shafts.	Extend mode Handles gross misalignment, plus a thermal growth calculator.	ARC 4.0 cloud Wi-Fi transfer to PC software to store, share and trend.																				
<table><tr><th>Item</th><th>Detail</th></tr><tr><td>Tablet</td><td>8" TFT, 1920 × 1200, 13 MP</td></tr><tr><td>Link</td><td>Wi-Fi, Bluetooth 5.0, NFC</td></tr><tr><td>Protection</td><td>IP68, −20 to 50 °C</td></tr><tr><td>Battery, weight</td><td>Up to 11 h, about 710 g</td></tr></table>	Item	Detail	Tablet	8" TFT, 1920 × 1200, 13 MP	Link	Wi-Fi, Bluetooth 5.0, NFC	Protection	IP68, −20 to 50 °C	Battery, weight	Up to 11 h, about 710 g	<table><tr><th>Item</th><th>Detail</th></tr><tr><td>Sensor</td><td>sensALIGN 3, 105 × 69 × 55 mm</td></tr><tr><td>Resolution</td><td>1 μm and 10 μrad</td></tr><tr><td>Error, laser</td><td>Below 2% (avg), Class 2</td></tr><tr><td>Protection, weight</td><td>IP65, battery 10 h, about 210 g</td></tr></table>	Item	Detail	Sensor	sensALIGN 3, 105 × 69 × 55 mm	Resolution	1 μm and 10 μrad	Error, laser	Below 2% (avg), Class 2	Protection, weight	IP65, battery 10 h, about 210 g	
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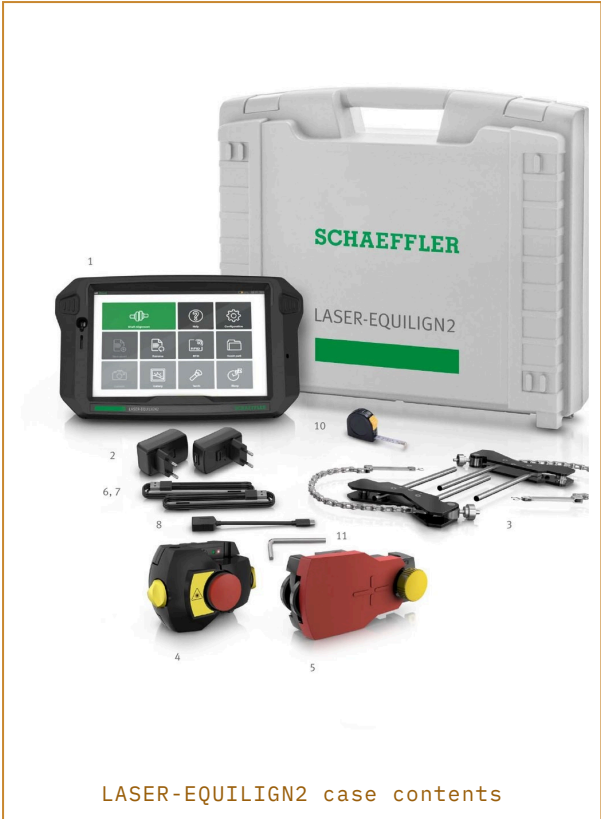
KEY NOTE • HOW IT WORKS

One sensor sends a laser beam to a reflector on the other shaft. The reflector (a 90° roof prism) returns the beam, so the sensor sees how the two shafts sit relative to each other. You rotate the shafts and take three measurements, shim the vertical, move the horizontal using live values, then re-measure and print the As Found and As Left report.

Best for routine horizontal pump, motor and fan sets, and crews that want a guided tablet with cloud reports. For trains, cardan drives or flatness, see the Easy-Laser XT (page 8).

Schaeffler LASER-EQUILIGN2

LASER-EQUILIGN2 is Schaeffler's single-laser system for horizontal machines. An eight-inch tablet guides the job step by step.



LASER-EQUILIGN2 case contents

WHAT IS IN THE CASE

- | | |
|----|--|
| 1 | Handheld tablet, 8", IP68, RFID, camera with flash |
| 2 | Chargers with five adapters |
| 3 | Shaft brackets for laser and reflector |
| 4 | Laser/sensor, Bluetooth, Li-ion battery |
| 5 | Reflector with roof prism |
| 6 | Micro USB cable, sensor charging |
| 7 | USB-C cable, tablet charging |
| 8 | USB A to USB C adapter cable |
| 9 | Case |
| 10 | Tape measure |
| 11 | Hex wrench, SW 4 |

Live Move Traffic light while you move the machine: red outside tolerance, yellow acceptable, green optimal.	Four-point clock mode More points over a larger rotation angle give more precise results.	RFID and Bluetooth Machines identified automatically; no cables to the sensor.
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Item	Detail	Item	Detail
Tablet	8", 1280 × 800, 8 MP	Sensor	1 μm and 10 μrad
Protection	IP68, -20 to 50 °C	Accuracy	Above 98% (average)
Battery, link	Up to 11 h; Wi-Fi, Bluetooth 4.2, NFC	Laser	Class 2, 630 to 680 nm
Case	500 × 410 × 140 mm, 7.8 kg	Reflector	90° roof prism, above 99%

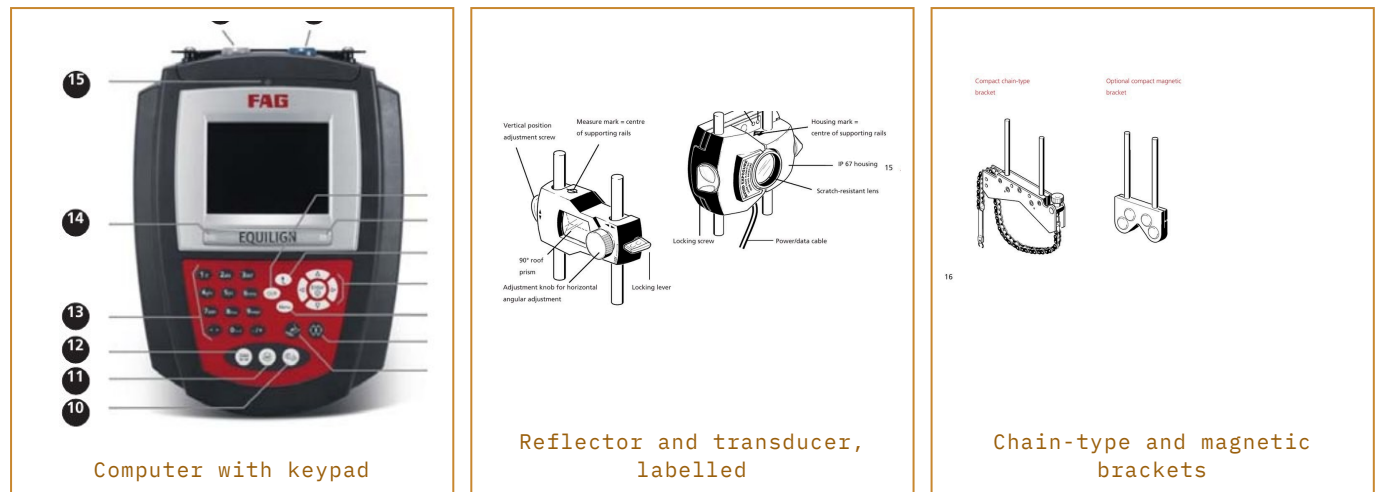
KEY NOTE · HOW IT WORKS

Same single-laser idea as the Fluke 831, with a different tablet and software. While you move the machine, Live Move shows a traffic light, so you stop at green without a second measurement run. RFID identifies the machine automatically, which sends the report to the right asset record.

Best for horizontal pump, fan and gearbox sets where a traffic-light Live Move and a quick set-up count. For trains, vertical or offset machines, see the Easy-Laser XT.

FAG Top-Laser EQUILIGN

The FAG Top-Laser EQUILIGN is the earlier Schaeffler system, with a rugged handheld computer, a transducer and a reflector. Its handbook gives a clear eleven-step routine for horizontal machines.



HORIZONTAL ALIGNMENT IN 11 STEPS

- 1 Prepare the alignment
- 2 Check for soft foot
- 3 Mount the chain-type brackets
- 4 Mount transducer and reflector
- 5 Connect the transducer
- 6 Switch on and start the application
- 7 Enter dimensions, adjust the laser beam
- 8 Take measurements
- 9 Read the results
- 10 Align the machine
- 11 Save and print

Item	Detail
Computer	3.5" TFT, 320 × 240
Power	5 × AA, about 9 h
Protection	IP65
Size, mass	220 × 165 × 45 mm, 742 g

FAG "GOOD" TOLERANCES (MM)

Short flexible couplings	mm
Soft foot, all speeds	0.06
Offset, 750 r/min	0.19
Offset, 1 500 r/min	0.09
Offset, 3 000 r/min	0.06
Offset, 6 000 r/min	0.03
Gap per 100 mm, 1 500	0.07
Gap per 100 mm, 3 000	0.04

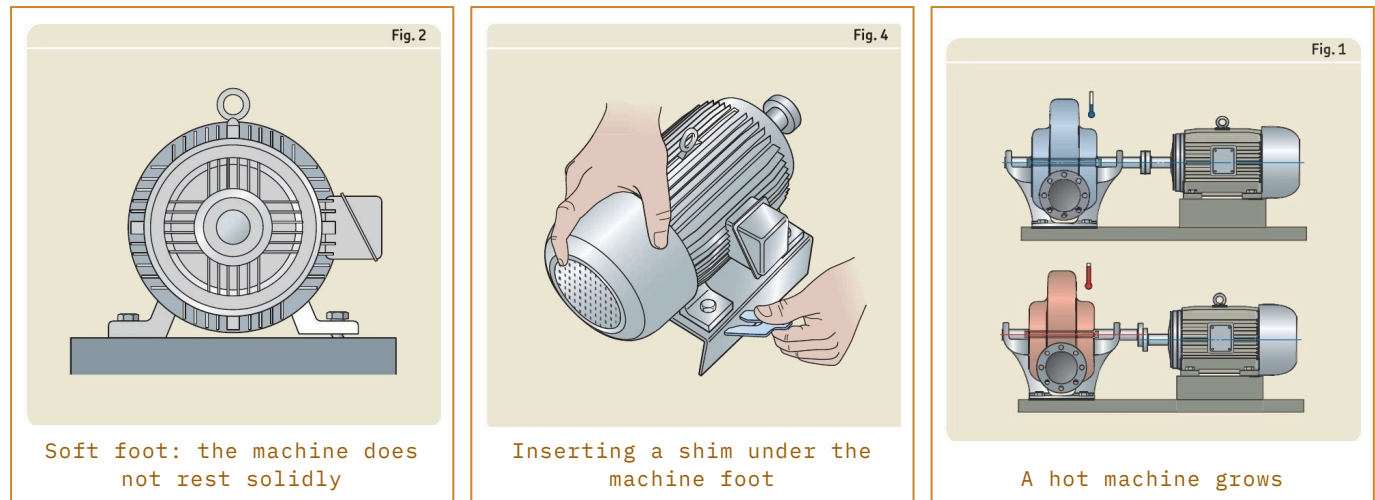
Item	Detail
Transducer	IP67, 107 × 70 × 49 mm, 177 g
Reflector	90° roof prism, 65 g, IP67
Laser	Class 2, 675 nm, below 1 mW
Case	About 4.1 kg complete

KEY NOTE • HOW IT WORKS

The routine is the same as for any laser system: prepare, check soft foot, mount, measure, correct, save. What differs is the keypad menu, which is slower than a touch tablet but rugged. Keep using it if you own it and your crew knows it. For a new purchase, ask about LASER-EQUILIGN2, the newer Schaeffler system.

Foundation, soft foot and bolting

Alignment lasts only if the machine sits on a sound base and is bolted correctly. Check these before you measure, then re-check after the work.



FOUNDATION AND SOFT FOOT

- Inspect for cracks and damaged bolt holes; repair first
- Remove old shims, chocks, rust, paint and oil
- Check flatness with a laser; it should be within IT7 grade
- Check soft foot with feeler gauges or a laser
- Use stainless steel shims, never copper or brass
- Use one shim where possible and never more than three

BOLTING AND THERMAL GROWTH

- Wrong torque lets the machine move and spoils alignment
- Tighten to a maximum bolt tension of 75% of yield strength
- Use an accurate torque wrench in at least two stages, or a hydraulic tensioner
- Machines grow with heat; use the designer's thermal offset as the target
- Align when machine and foundation temperatures are stable
- If the owner has no torque value, ask the application engineer

BEFORE YOU MEASURE: 6-POINT CHECK

Foundation and shims inspected, soft foot checked	Bolts clean, undamaged, torque value known	Machine and foundation temperatures stable
Thermal offset target entered	Brackets tight, rods clear of guards and pipes	Lock-out and tag-out in place

KEY NOTE • HOW IT WORKS

Soft foot means one foot does not sit flat on the base. When you tighten that bolt the housing bends, and the alignment you measured changes. A soft foot makes vertical alignment impossible, and forcing the bolts only distorts the housing. Check it first with feeler gauges or the laser, fix it with a single stainless shim, then align.

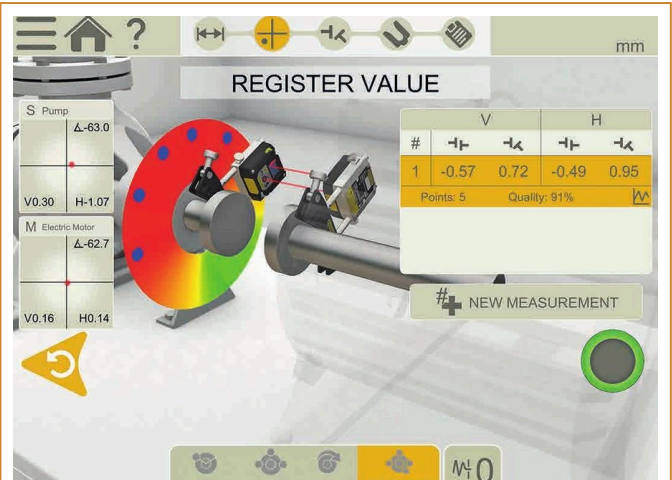
Soft foot first. Then align, then re-check the bolts and the reading.

Laser alignment step by step

Follow the maker's manual for button-level steps. The sequence below applies to any twin laser system (general practice).



Laser system set up on a motor-driven machine



XT Alignment app screen while registering values

Step	Action
1. Lock out	Switch off and lock out the machine, then isolate it.
2. Inspect	Check base, soft foot, runout and which machine is stationary.
3. Mount	Fit the M unit on the movable shaft and the S unit on the stationary shaft; brackets tight, rods clear.
4. Connect	Pair the units with the display or app and enter distances A, B and C.
5. Measure	Rotate the shafts and register values in the chosen mode.
6. Read	Read vertical and horizontal offset and angularity against the tolerance.
7. Correct	Shim the feet for vertical, slide the machine for horizontal. Re-tighten and re-measure.
8. Close out	Test run, final measurement, save the report, remove the units.

RECORD ON THE JOB CARD

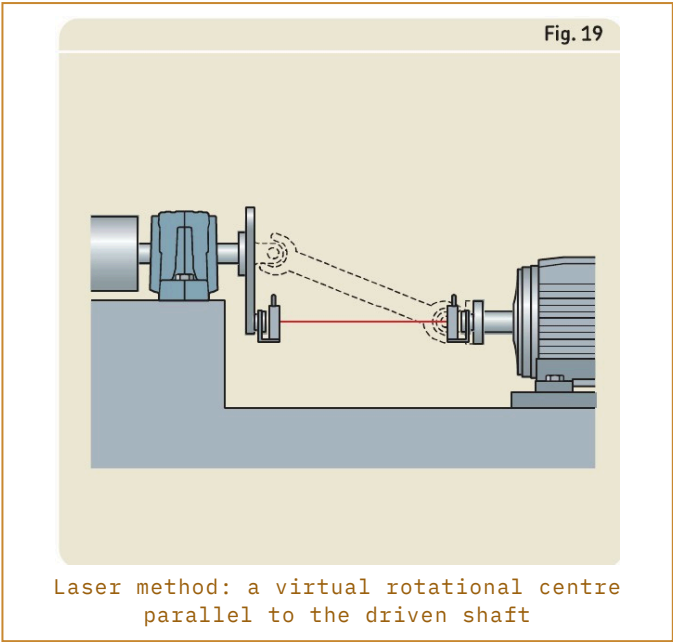
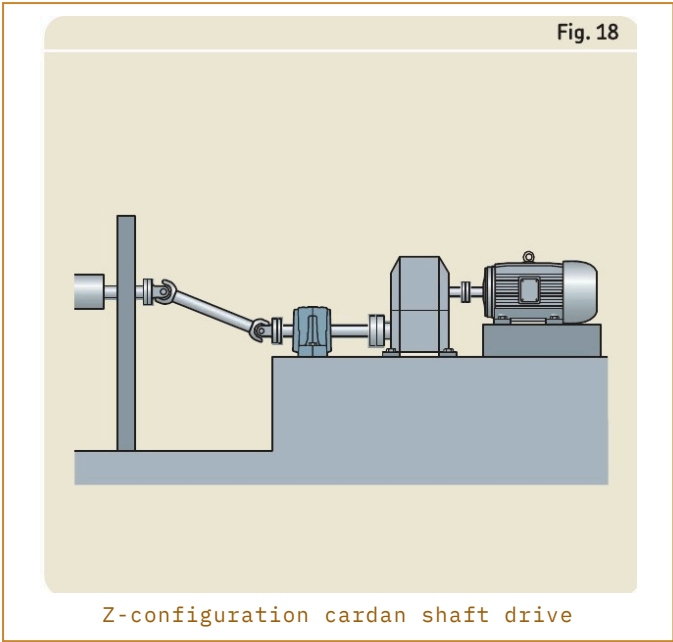
Machine tag and location	Date, tool and serial no.	Tolerance used
Before: offset / angularity	After: offset / angularity	Technician and sign-off

KEY NOTE • HOW IT WORKS

Re-measure after every correction. Moving the motor feet changes both planes together, so a correction is a calculation you verify, not a final answer. Read the live value while you move the machine, then confirm with a full measurement. The As Found and As Left record proves the job was done and gives you a baseline for the next failure review.

Offset (cardan) drives

In an offset drive, an intermediate (cardan) shaft with a universal joint at each end carries the power. The common Z-configuration is typical in paper machines.



Point	Detail
Misconception	Offset drives can tolerate a large error.
Reality	Poor alignment raises vibration and energy loss, wears parts early, and can shear the shaft.
Aim	Equal deflection angles in the joints and precision alignment of the drive and driven shafts.
What matters	Correct the angular misalignment; offset misalignment is irrelevant.
Tolerance	Within 0.50 mm per 1 000 mm angular misalignment is acceptable, if the machines are not base- or bolt-bound.
Laser method	Cancel the offset with a virtual "dummy" centre parallel to the driven shaft, using a cardan fixture kit and a twin laser tool.

KEY NOTE · HOW IT WORKS

The two joints of a cardan shaft only run smoothly when their angles are equal. If the angles differ, the shaft speed varies every turn, which adds vibration and wear. That is why angular misalignment is the value to correct, not offset. The laser method builds a virtual centre parallel to the driven shaft, so both joint angles can be set equal in one job.

Straightedges cannot give the accuracy offset drives need. Use a laser tool with the cardan fixture.

Failure modes and troubleshooting

Most tool problems are set-up problems. Most problems after alignment are base problems (general practice).

MEASUREMENT AND TOOL PROBLEMS

Symptom	Likely cause	Action
Readings do not repeat	Heat, light or vibration affected the laser; loose brackets	Shield the beam, tighten brackets, measure again
Shafts cannot turn a full circle	Machine stuck, guard or pipework in the way	Use multipoint, EasyTurn or uncoupled sweep
Units hit projecting parts	Offset between shaft and nearest part	Use the offset bracket or thin V-bracket
Chain too short	Shaft above 150 mm	Fit the extension chain
Laser misses the detector	Machines too far out	Rough-align first (about 1 mm and 0.1 mm/100 mm)
Display or app will not link	Low battery or wireless range	Charge the units; bring them closer

MACHINE PROBLEMS AFTER ALIGNMENT

Symptom	Likely cause	Action
Alignment drifts after a few months	Settling of base, chocks or shims	Re-check after 3 to 6 months, then yearly
Changes when bolts are tightened	Soft foot or wrong torque	Check soft foot; re-tighten in stages
Bearing or coupling runs hot	Misalignment or bad base	Re-measure, then inspect the bearings
Vibration at 2x RPM	Often angular misalignment	Measure alignment and read vibration again

WHEN TO RE-ALIGN

New installation: before the first run	After a swap: motor, pump, gearbox, coupling	After base repair: grouting, chocks, frame
Vibration alarm: 2x RPM rise or hot bearing	After a shutdown: pipework or foundation disturbed	Routine: 3 to 6 months, then yearly

KEY NOTE • HOW IT WORKS

Work from the symptom to the cause in the table, and fix the cause before you align again. A reading that will not repeat is almost always heat, light or a loose bracket, not the machine. A drifting alignment is almost always the base: settling shims, soft foot or bolt torque.

Caution: do not weld near laser equipment or on the machine where the laser is fitted. It can damage the diodes and electronics.

Safety, care and storage

Treat a laser tool like an instrument. Keep it clean, charged and protected, and respect the laser and the machine.

01 • Before you work

Lock out and tag out the machine before any correction. This prevents serious injury.

02 • Laser safety

Class 2 laser, 630 to 680 nm. Never stare into the beam or aim it at a person.

03 • Hazardous areas

Only the XT50 measuring units are EX rated. Brackets, case and other parts are not, and must be assessed before use.

04 • No welding

Welding near the laser equipment, or on the machine it is fitted to, can damage the diodes and electronics.

CARE AND STORAGE

Item	Guidance
Operating range	–10 to 50 °C, humidity 10 to 95%
Charging	0 to 50 °C
Storage	–20 to 50 °C
Protection	IP66/67 for units and XT12
Cleaning	Use a cleaning cloth for optics; keep apertures clean
Calibration and service	Easy-Laser service normally handles calibration within seven working days; a 48 hour express service is offered
Warranty	3 years limited

KEY NOTE • HOW IT WORKS

A Class 2 laser is safe for a brief, accidental glance, but never stare into the beam or point it at anyone. Lock out and tag out before every correction, because you reach into the coupling area. Do not weld near the tool: welding current and heat can destroy the diodes. Keep the optics clean and the batteries charged so the tool is ready for the next job.

Store it ready. Charge the units, keep brackets and rods in the case, and wipe the optics after each job.

Global brands and cross-reference

IndustrialHub BD helps maintenance and engineering teams choose laser alignment systems by equipment type, shaft arrangement, coupling configuration, accuracy and operating needs.

SKF

LASER SHAFT ALIGNMENT TOOLS • TRAINING

Bearings and maintenance products, with laser shaft alignment tools and training.

Fluke

831 LASER SHAFT ALIGNMENT TOOL

Maintenance-focused laser alignment tools. Fluke also owns Prüftechnik.

Prüftechnik

PIONEER OF LASER ALIGNMENT

Long-established precision alignment brand, now part of Fluke.

Easy-Laser

XT SERIES • XT ALIGNMENT APP

Swedish alignment specialist. XT series with the free XT Alignment app.

Fixturlaser

LASER SHAFT ALIGNMENT SYSTEMS

Laser shaft alignment systems.

FAG (Schaeffler)

TOP-LASER EQUILIGN • LASER-EQUILIGN2

Top-Laser EQUILIGN and the newer LASER-EQUILIGN2 single-laser systems.

CROSS-REFERENCE RULE

Never mix brackets, units or programs between brands. Match these points against the maker's own data first, then compare the offers.

Detector size and axes	Laser type and class	Range	Accuracy	Bracket diameter range
Software and reports	Environment rating	Hazardous rating	Calibration	Warranty and support

Maintenance team

Start from the machine: shaft arrangement, coupling, centre distance, area class, and whether the shaft can turn. Cross out the tools that miss one of these, then shortlist on page 19.

We support solutions from recognized brands including SKF, Fluke, Prüftechnik, Easy-Laser, Fixturlaser and FAG, subject to technical suitability, product availability and specific customer requirements.

Global brand comparison statement

Four documented systems on the points that decide most selections. Use it to shortlist by machine, then ask each supplier for the full data sheet.

MAJOR KEY POINTS

	Easy-Laser XT770	Fluke 831	Schaeffler LASER-EQUILIGN2	FAG EQUILIGN
Laser concept	Two units, dot laser	Single reflected beam	Single reflected beam	Single reflected beam
Resolution, accuracy	0.001 mm; $\pm 1 \mu\text{m}$ $\pm 1\%$	1 μm ; error below 2%	1 μm ; above 98%	1 μm ; above 98%
Range	Up to 20 m	Unlimited, extendible	Unlimited, expandable	Any, extendible
Display	XT12 8" touch, or phone or tablet app	8" tablet, 1920 × 1200	8" tablet, 1280 × 800	3.5" screen, 320 × 240
Protection, battery	Units IP66/67, 24 h	Sensor IP65, tablet IP68; 10 / 11 h	Sensor IP65, tablet IP68; 10 / 11 h	Computer IP65; 5 AA, about 9 h
Trains, vertical, offset drives	Yes, with bracket kit for cardan	Vertical in data sheet; others not stated	Horizontal machines	Horizontal machines
Hazardous area	XT550 EX only (ATEX zone 1/21)	Not stated	Not stated	Not stated
Reports and data	PDF and Excel, e-signature; email, USB, cloud	As Found, As Left; Wi-Fi to ARC 4.0	Camera with flash; RFID, Wi-Fi	Text or graphical; USB stick
Best for	Trains, vertical and offset machines; many jobs	Guided tablet, routine horizontal jobs	Quick set-up, traffic-light Live Move	Plants that already own FAG units

How maintenance and procurement use this page

Maintenance picks by machine, shaft arrangement and area class. Procurement then asks every supplier for the model and revision, brackets and chains in the kit, software licence, calibration certificate, warranty, training and delivery time. SKF and Fixturlaser data were not in the documents we reviewed; ask for current data sheets.

Not stated means the maker document we used does not list it. Ask for the current data sheet before you order. We support solutions from recognized brands including SKF, Fluke, Prüftechnik, Easy-Laser, Fixturlaser and FAG, subject to technical suitability, product availability and specific customer requirements.



REQUEST A QUOTATION

Maintenance and plant teams: send the machine, shaft sizes, coupling type, centre distance and preferred brand. You get the right laser alignment system, the price and the delivery time, and an engineer who stays with you after delivery.

PHONE / WHATSAPP +880 1746 881144

EMAIL sales@industrialhubbd.com, industrialhubbd@gmail.com

WEBSITE <https://industrialhubbd.com>

SOCIAL [linkedin.com/company/industrialhubbd](https://www.linkedin.com/company/industrialhubbd)
[youtube.com/@IndustrialHubBD](https://www.youtube.com/@IndustrialHubBD)

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[Request a quotation →](#)

[WhatsApp +880 1746 881144](#)

★ WE STAY AFTER DELIVERY

AFTER-SALES SERVICE

- Commission and start up equipment
- Find faults and analyse failures
- Plan shutdowns and advise on repairs

★ 20 YEARS ON THE PLANT FLOOR

WHO LEADS US

- Erect, commission and revamp mills
- Operation, maintenance & shutdowns
- Troubleshoot and spares

WHAT WE SUPPLY AND SUPPORT

PARTS

- Laser shaft alignment systems
- Brackets, chains and extension kits
- Cases, cables and batteries
- Software and reports

SUPPORT

- Pick the right system
- Set-up and tolerance advice
- Training and first alignment
- Quotation and delivery follow-up