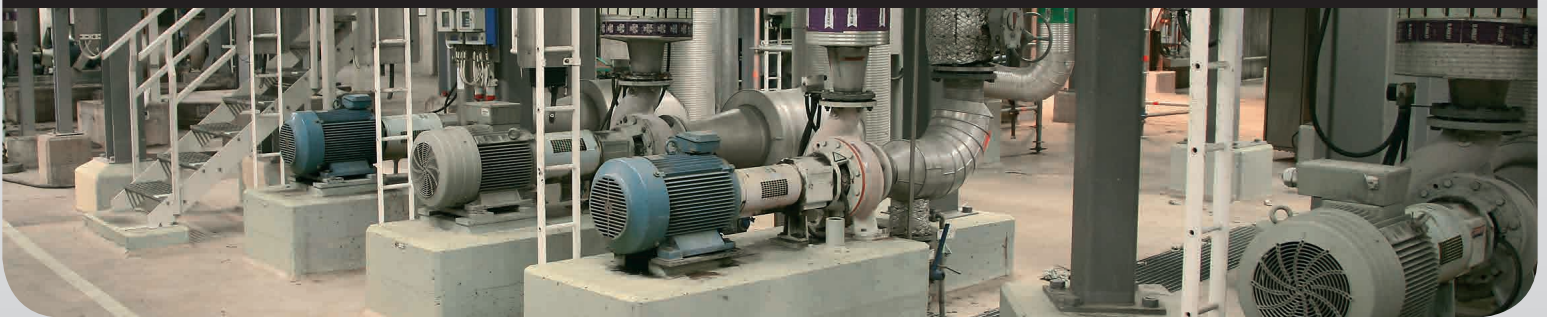


E420



SHAFT ALIGNMENT

Entry level measurement and alignment system for rotating machines



ENTRY LEVEL REDEFINED!

SETTING A NEW STANDARD

Easy-Laser® E420 sets a new standard in entry level laser systems for shaft alignment. The system includes wireless measuring units, a large 5.7" color display, and an IP65-rated design that can withstands harsh environments. These are the features you would normally only find in more expensive systems!

Simply put, Easy-Laser® E420 has everything an entry level system should have, and more. Take the next step into wireless freedom!



HORIZONTAL MACHINES

Horizontally mounted machines often consist of a pump and a motor, but can also include other types of machines such as gearboxes and compressors. Regardless of the machine type, it is easy to measure and align with Easy-Laser® E420.



VERTICAL/FLANGE-MOUNTED MACHINES

This program is used for alignment of vertical and flange-mounted machines, e.g. pumps, motors, gear boxes. Shows center offset, angular error and shim value at each bolt.



VALUES – DIGITAL DIAL INDICATOR

The Values program can be used e.g. when one wants to measure as with dial gauges and to check bearing play. With the standard equipment and completely normal set up on the machine!



Easy-Laser® is used to align pumps and motors for all types of installations in a variety of industries. Correctly set-up and aligned machines are necessary to reduce energy consumption and achieve optimum service life.



Easy-Laser® is used to align generators and gearboxes in wind turbines of a number of sizes and makes. Special brackets are available for alignment with locked rotors to increase the safety of the operator.

EASY-LASER® E420 HIGHLIGHTS

- Easy to learn and to use.
- Compact measuring units for use on most machine designs.
- All wireless units (Built-in Bluetooth® technology and integrated rechargeable battery).
- Large, easy to read 5.7" color display.
- Programs with both symbols and text = easy to understand.
- TruePSD technology with unlimited resolution.
- Dual PSD, dual laser beams and dual inclinometers for superior control and accuracy.
- 3 year warranty gives assurance.
- Fast service and support. 48-hours Express service if necessary.
- Low overall costs during the entire lifecycle of the product, for example calibration, accessories, etc.



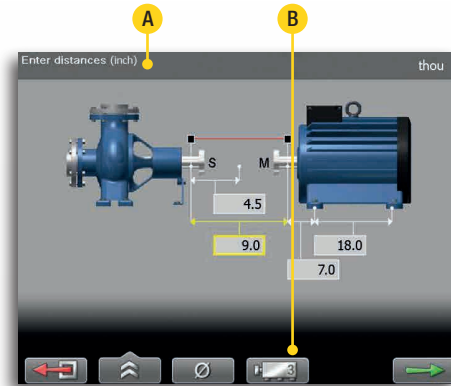
THIS IS HOW IT WORKS

EASY TO USE

Alignment should be easy! That is the fundamental philosophy behind our measurement systems. The simple mounting system and straightforward user interface make the Easy-Laser® E420 easy to learn, easy to understand and easy to use! To the right you can see the procedure for measurement of a horizontal machine.

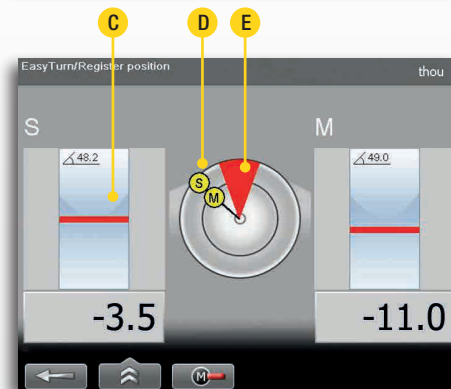
EASY TO USE = FAST RESULTS

- Mount the equipment quickly with the pre-mounted units.
- Enter all machine data with the barcode reader*.
- Start measurement anywhere on the revolution, without the need for an exact position, then turn a minimum 20° to the next position.
- Adjust the machine in live mode in both Horizontal and Vertical directions.



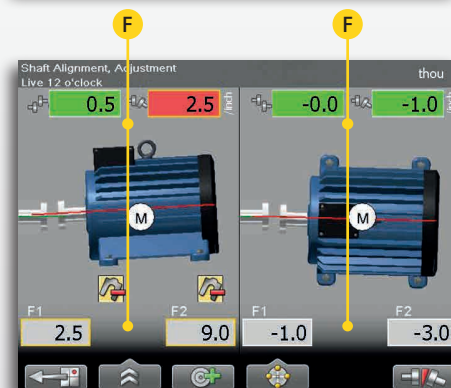
1. Enter the distances between measuring units and the machine feet. If you enter the coupling diameter you can also get the result as gap/sag.

- A. Information field. States what you must do at each stage of the measurement.
 B. You can also measure machines with 3 feet pair.



2. Take the measurement values in three positions with as little as 20° between.

- C. The detector surface is shown on the screen and functions as an electronic target for the laser beams.
 D. The measuring unit's position is shown.
 E. 20° marking.



3. The live values reflect the adjustments made to the machine. For clarity, the adjustment is displayed both graphically and numerically. Horizontal and Vertical directions are shown at the same time.

- F. Shims values and horizontal adjustment values. Offset and angular values are color coded in order to determine the result more quickly: red=outside tolerance, green=inside tolerance.

4. Document the measurement result. See next page for more information.

BARCODE READER



The barcode reader is used to enter the machine data before measurement is taken. After the first measurement is recorded, the adhesive barcode label is applied to the machine. Next time the machine is checked, the measurements, compensation values and tolerances can be read directly from the barcode. Simple and accurate! (*Barcode reader is accessory.)



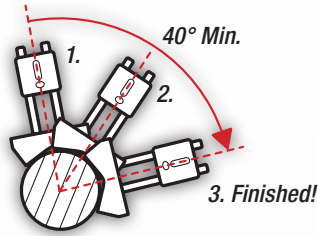
SMART FUNCTIONS

Start measurement at any position!

EASYTURN™



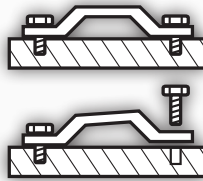
The EasyTurn™ function allows you to begin the measurement process from anywhere on the turn. You can turn the shaft to any three positions with as little as 20° between each position to register the measurement values. Voila! Measurement is complete!



SOFT FOOT CHECK



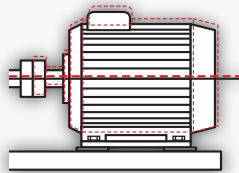
Alignment work begins with a soft foot check. The soft foot check ensures that the machine is resting evenly on all its feet by indicating which foot/feet should be adjusted. This is an important part of securing a reliable alignment.



THERMAL GROWTH COMPENSATION



Oftentimes, machines expand considerably when moving from a cold to hot operating temperature. The Thermal Growth Compensation function allows the measurement system to calculate the appropriate shims and values needed to make adjustments in such cases.



TOLERANCE CHECK



Measurement results can be checked against pre-defined tolerance tables or values you determine yourself. This allows you to immediately see if the alignment is within the approved parameters, thereby considerably reducing the amount of time spent on alignment.

MEASUREMENT VALUE FILTER



An advanced electronic filter function can be used to achieve reliable results even under poor measuring conditions. Air turbulence and vibrations from adjacent machines are no match for the Easy-Laser® E420 advanced filter function!

LIVE-ANY-ANGLE 360°



This function allows you to adjust machines in real time with the measuring units positioned anywhere on the shaft. It is ideal for situations in which outside objects interfere with normal positioning.

MULTIPLE SETS OF FEET



The software can adjust to machine designs of most types such as those with two pairs of feet, three pairs of feet, and feet in front of the coupling, etc.

DOCUMENTATION

SAVE IN BUILT-IN MEMORY

Save all measurements in the Display unit's internal memory.

SAVE TO USB MEMORY

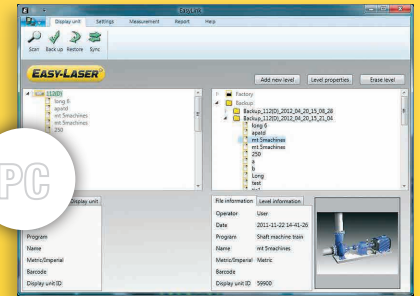
Save desired measurements on your USB memory. This enables you to take it to your computer to print reports whilst leaving the measurement system in place.

MAKE A PRINTOUT

Quickly print all measurement data locally with a thermal printer (accessory).

EASYLINK™

With the EasyLink™ database program for PC you can save and organize all your measurements in one place, produce reports with both data and images and export to your maintenance systems.



PC

USB



SYSTEM PARTS

DISPLAY UNIT

The display unit has a thin, easy-to-grip rubber coated exterior for secure handling. The large well-spaced panel buttons correspond to clear graphics that guide you through the measurement process with ease.

Water and dust proof to class IP65.

LANGUAGE SELECTION

Choose the language that you want to appear on screen. English, Spanish, German, French, Portuguese, Swedish, Finnish, Russian, Dutch, Polish, Korean and Chinese are available.

More languages to follow.

FEATURES

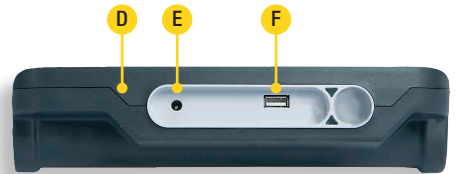
- Robust, rubber coated design, IP65
- Large 5.7" color display
- Language selection and symbols
- Guiding software
- Bar code reader support
- Large internal memory
- User profiles with your personal settings
- Integrated calculator
- Conversion tool for length units
- USB interface



A. Battery status check. Possible without starting up the system.

B. Large, easy to read 5.7" color display.

C. Escape button.



D. Robust, rubber coated design

E. Connection for charger

F. USB A

Note: Dust and splash guard for connectors removed on picture.

MEASURING UNITS

The measuring units have large detectors (TruePSD) that allow you to measure from distances up to 10 feet (3 meters). The substantial design made of aluminum and stainless steel guarantees precise measurement and reliable alignment in even the toughest environments. The measuring units are water and dust proof to class IP65.

ALWAYS WIRELESS CONNECTION

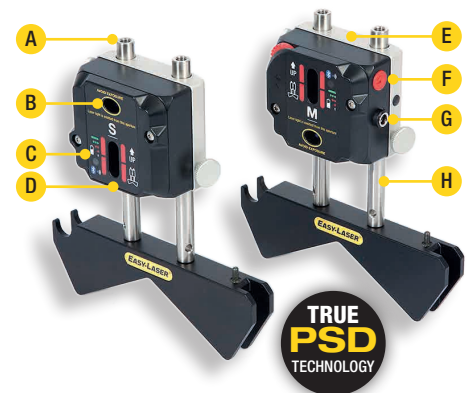
The measuring units are connected to the Display unit wirelessly, which gives you full freedom to move around your machines with the Display unit!

CHARGING

For charging, connect the two measuring units to the Display unit with the supplied splitter cable. This way you can also supply the measuring units with power during measurement, if needed.

FEATURES

- Compact units with built-in Bluetooth® technology as standard. Integrated rechargeable battery.
- TruePSD technology with unlimited resolution for greatest accuracy.
- Large 0.78" detectors [20 mm].
- Dual laser beams and PSDs.
- With electronic inclinometers in both measuring units, the system knows exactly how they are positioned making it easier to align uncoupled shafts.
- Pre-mounted units for quicker mounting.
- Digital targets, i.e., onscreen position of the laser beams.
- Sturdy aluminum body. IP65 design.
- Compact units, easy to mount on the machine also when space is limited
- Battery status indicator on the unit.



A. The rods have a height of 2.4–7.1". If necessary they can be extended "infinitely" with additional rods. Made of stainless steel.

B. Laser aperture (line laser)

C. LED indicator

D. PSD (0.78"/20 mm)

E. Sturdy aluminum body

F. On/Off button

G. Connector for charger cable

H. Pre-mounted units/brackets



TECHNICAL DATA

Extend the warranty from 2 to 3 years by registering your system on the Internet.

System	
Relative humidity	10–95%
Weight (complete system)	13.9 lbs [6.3 kg]
Carrying case	WxHxD: 19.7"x16.3"x6.7" [500x415x170 mm]

Measuring units M / S	
Type of detector	True PSD 0.78" [20 mm]
Wireless communication	Class I Bluetooth® wireless technology
Operating time	>4 hr
Resolution	0.5 mils [0.01 mm]
Measuring errors	±1% +1 digit
Measurement range	Up to 10 feet [3 m]
Type of laser	Diode laser
Laser wavelength	635–670 nm
Laser class	Safety class II
Laser output	<1 mW
Electronic inclinometer	0.1° resolution
Thermal sensors	-20–60 °C
Environmental protection	IP class 65
Temperature range	-10–50 °C
Housing material	Anodized aluminum / ABS plastics
Dimensions	WxHxD: 2.72"x2.42"x1.63" [69.0x61.5x41.5 mm]
Weight	6.2 oz [176 g]

Display unit	
Type of display/size	VGA 5.7" color screen, backlit LED
Displayed resolution	0.5 thou / 0.01 mm
Internal battery (fixed)	Heavy duty Li Ion chargeable
Operating time	Approx. 30 hours (at typical user cycle)
Temperature range	-10–50 °C
Connections	USB A, Charger
Wireless communication	Class I Bluetooth® wireless technology
Internal memory	>2000 measurements can be saved
Help functions	Calculator, Unit converter
Environmental protection	IP class 65
Housing material	PC/ABS + TPE
Dimensions	WxHxD: 9.8"x6.9"x2.5" [250x175x63 mm]
Weight	2.0 lbs [910 g]

Cable	
Charging cable (splitter cable)	Length 39.4" [1 m]

Brackets etc.	
Shaft brackets	Type: V-fixture for chain, width 0.7" [18 mm]. Shaft diameters: 0.8"–17.7" [20–450 mm] Material: anodized aluminum
Rods	Length: 4.72", 2.36" [120 mm, 60 mm] (extendable) Material: Stainless steel

EasyLink™ Data base software	
System requirements	Windows® XP, Vista, 7. For the export functions, Excel 2003 or newer must be installed on the PC.

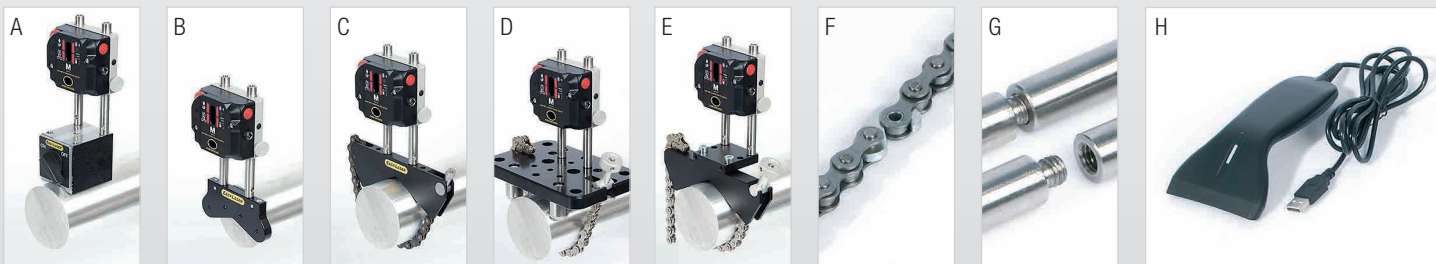
A complete system contains	
1	Measuring unit M
1	Measuring unit S
1	Display unit
2	Shaft brackets with chains
2	Extension chains
4	Rods 4.72" [120 mm]
4	Rods 2.36" [60 mm]
1	Measuring tape 9.8' [3 m]
1	Charger (100–240 V AC)
1	DC split cable for charging
1	DC to USB adapter, for charging
1	Quick reference manual
1	USB memory with manuals and EasyLink™ PC software
1	CD with documentation
1	Carrying case

System Easy-Laser® E420 Shaft, Part No. 12-0745



- A. Magnet base, Part No. 12-0013
- B. Magnetic bracket, Part No. 12-0413
- C. Thin shaft bracket, Part No. 12-0412
- D. Sliding bracket, Part No. 12-0039
- E. Offset bracket, Part No. 01-1165
- F. Extension chain, Part No. 12-0128
- G. Extension rods
Length 1.18" [30 mm], (1 x) Part No. 01-0938
Length 2.36" [60 mm], (4 x) Part No. 12-0059
Length 4.72" [120 mm], (8 x) Part No. 12-0324
Length 9.44" [240 mm], (4 x) Part No. 12-0060
- H. Barcode reader, Part No. 12-0619

OPTIONAL BRACKETS ETC.



Easy-Laser® is manufactured by Damalini AB, Alfagatan 6, SE-431 49 Mölndal, Sweden
Phone +46 31 708 63 00, Fax +46 31 708 63 50, email: info@damalini.se, www.damalini.com
© 2013 Damalini AB. We reserve the right to make modifications without prior notification.
Easy-Laser® is a registered trademark of Damalini AB. Other trademarks belong to the relevant copyright holder.
This product complies with: EN60825-1, 21 CFR 1040.10 and 1040.11
This device contains FCC ID: PVH0925, IC: 5325A-0925.

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
DIODE LASER
1 mW MAX OUTPUT AT 635-670 nm
CLASS II LASER PRODUCT

CE ISO9001 CERTIFIED 05-0651 Rev2

CASCADE
MACHINERY VIBRATION SOLUTIONS
To find your local representative, please visit www.cascademvs.com

Cascade MVS
1705 Gill Rd
Dickinson, TX 77539
Tel: 281-482-2727
Fax: 832-201-0346
E-mail: easy-laser@cascademvs.com