

# Easy-Laser®

Measurement and Alignment Systems

D480

## SHAFT ALIGNMENT

*Quick, simple and effective!*



PC SOFTWARE INCLUDED




PRINTER CONNECTION



EXPANDABLE



COMPENSATION THERMAL GROWTH



TOLERANCE CHECK



MEASUREMENT VALUE FILTER



40° MINIMUM ROTATION

## FOR ALL NEEDS















Every part of the Easy-Laser® systems is designed to withstand the most demanding environments and to be easy to operate when doing the measurements. The versatile design tackles all types of measurement quickly and accurately. You can measure all types of rotating machine with a measurement distance of up to 10 metres [33 feet].

All in all, Easy-Laser® provides you with many opportunities for measuring and alignment:

- SHAFT ALIGNMENT
- SHEAVE / PULLEY ALIGNMENT
- VIBRATION MEASUREMENT
- TWIST MEASUREMENT OF FOUNDATIONS
- STRAIGHTNESS MEASUREMENT

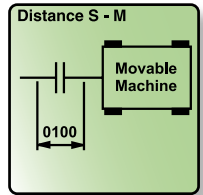
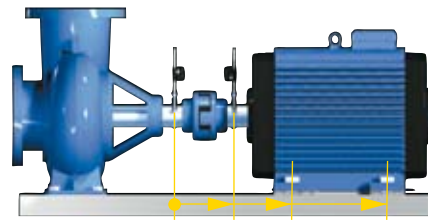
Using a single instrument, you have the potential to trouble-shoot and prevent wear and breakdowns in your machines. Easy-Laser® offers what is probably the most competent and cost-effective measuring system for rotating machines on the market!

## PROGRAMS AND FUNCTIONS

-  **HORIZONTAL** – For the alignment of horizontal machines by the 9–12–3 method.
-  **SOFT FOOT** – With this program you can check that the machine is resting on all its feet. Shows which foot should be corrected (if necessary).
-  **THERMAL GROWTH COMPENSATION** – Compensates for difference in thermal growth between machines. Sub-function.
-  **TOLERANCE CHECK** – Checks the offset and angle values in relation to selected tolerance. Shows graphically when the alignment is within tolerance. Sub-function.
-  **MEASUREMENT VALUE FILTER** – Advanced electronic filter for accurate results even in poor measuring conditions such as air turbulence and high vibration. Sub-function.
-  **EASYTURN™** – For the alignment of horizontal machines. Allows complete measurement with only 40° rotation of the shafts.
-  **CARDAN** – Shows angular errors and adjustment value on cardan-shaft-coupled/centre-offset machines. (Requires accessory fixtures Cardan)
-  **VERTICAL** – For measurement of vertical and flange-mounted machines.
-  **MACHINE TRAIN** – For the alignment of between two and ten machines in line (nine couplings). The entire alignment can be followed live on the screen.
-  **REFLOCK™** – Any pair of feet can be locked/set as a reference. Sub-function.
-  **OFFSET AND ANGLE** – Shows centre offset and angular error between two shafts, for example. Also suitable for dynamic measurements.
-  **VALUES** – Shows live readings from S- and M-unit. Can be used for shaft alignment, straightness measurement and dynamic measurement. Up to four detectors can be connected in series and be zeroed individually.
-  **VIBROMETER** – Shows vibration level in “mm/s” or “inch/s”, and bearing condition value in “g”. The measurement complies with vibration standard ISO10816-3. (Requires accessory Vibrometer probe D283.)
-  **BTA DIGITAL** – For alignment of belt and chain drives. (Requires accessories BTA Digital transmitter and detector unit.)

## 1. WHAT THE PROGRAM NEEDS TO KNOW

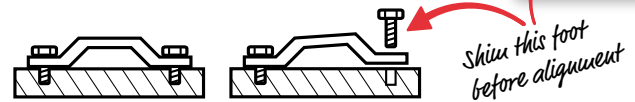
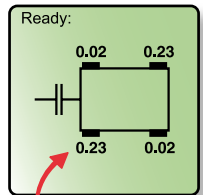
The only thing you have to tell the measurement program is the distances between the measuring units and the machine feet. The measurement system takes care of the rest. Simple!



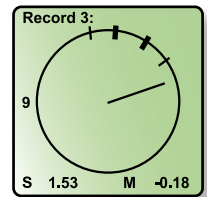
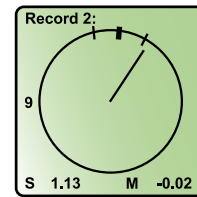
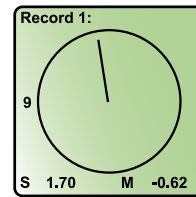
## 2. SOFT FOOT CHECK

Start by carrying out a soft foot check to ensure that the machine is resting evenly on all its feet. This is necessary for a reliable alignment.


After the soft foot check, you can go directly to the alignment program with all the machine's distances saved.

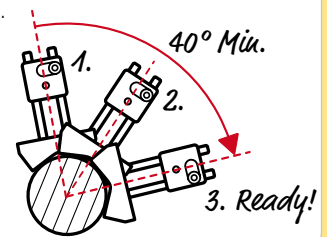


## 3. SIMPLE MEASURING PROCEDURE



Turn shafts with measuring units to three positions. With the EasyTurn™ program you can start the measurement anywhere on the revolution.

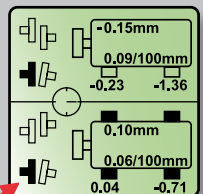
Press the Enter button  at each position to record the value. The measurement is ready!



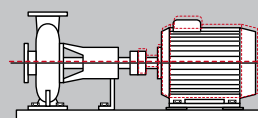
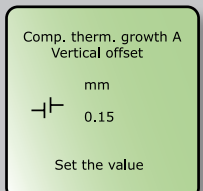
## THERMAL GROWTH AND TOLERANCE CHECK

The measurement results can be checked against predefined tolerance tables or values that you determine yourself. In this way you see immediately whether the alignment is within the approved tolerance.

*Filled coupling symbols, indicating that alignment is within tolerance.*



A pump and a motor often expand differently when changing from a cold to a hot state (operating temperature). Using the Thermal Expansion Compensation function, the measurement system calculates the correct shim and adjustment values in these cases too.

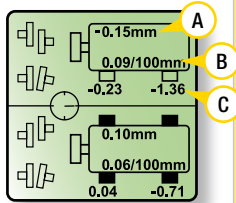


## 4. THE RESULT IS CLEARLY DISPLAYED

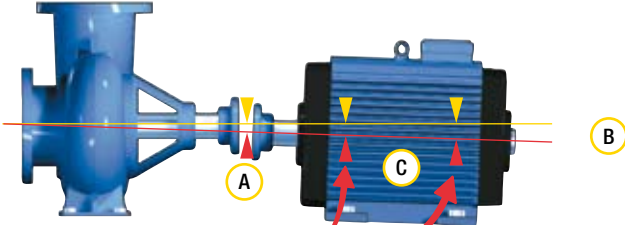
Offset, Angular values and Shim and Adjustment values are clearly displayed. Both horizontal and vertical values are shown "live", which makes it easy to adjust the machine.

- A. Offset value
- B. Angular value
- C. Shim/Adjustment value.

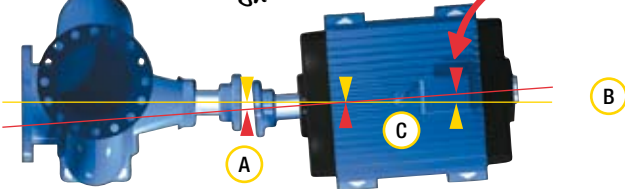
Live direction indicated by filled machine feet symbols.



### VERTICALLY



### HORIZONTALLY



## 5. DOCUMENTATION OF MEASUREMENT RESULTS

When measurement is complete, you have several options for documenting the results. Choose the one that is best suited for the situation, depending, for example, on whether further analysis is needed or whether a measurement report needs to be produced. A keyboard with all characters available makes it quick and easy to give each measurement a unique description.



*Your description*

### SAVE IN THE DISPLAY UNIT

You give every measurement an individual name. The system then adds the time and date of the measurement. Up to 1000 shaft alignment measurements can be saved.



### PRINT

Quickly print all measurement data locally. This is useful, for example, if you don't want to connect the display unit to a PC.



*Printout with all measurement data*



### TRANSFER MEASUREMENT DATA TO PC

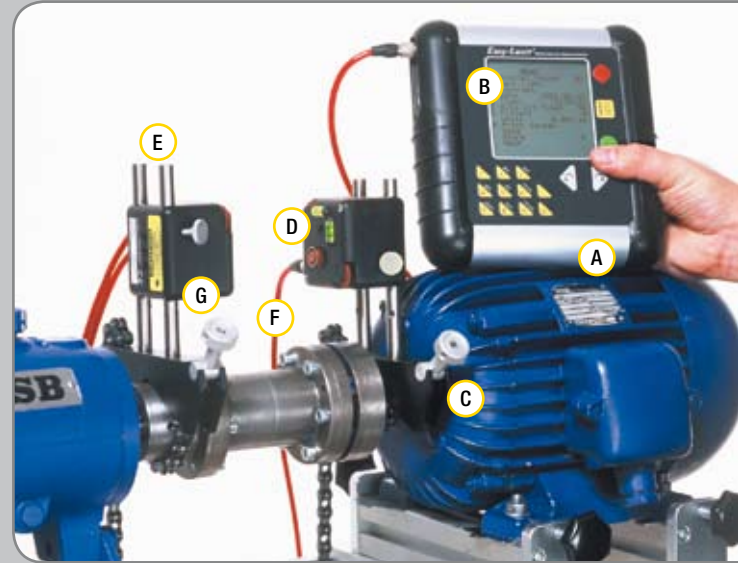
With the EasyLink™ program for Windows® (included), you can produce professional reports with both measurement data and pictures, export to spreadsheets such as Excel®, etc.



*Excel® sheet with graphics*

## RUGGED DESIGN

The rugged aluminium and stainless steel design guarantees stable measurement values and reliable alignment even in the harshest of environments. Double rods for the measuring units and stable chain shaft fixtures are other features making this a high performance system.



- A. Display unit made of anodized aluminium.
- B. Clear, backlit LCD display. Easy to read even in poor light conditions.
- C. Universal shaft brackets with chains.
- D. Clear spirit levels in both units for quick and accurate positioning.
- E. Double rods for each unit, made of stainless steel.
- F. Cables with Push/Pull connection.
- G. Small, lightweight measuring units made of aluminium.
- H. All settings are easy to reach from the main menu.
- I. Durable membrane keyboard with all characters.
- J. RS 232 port for printer and PC connection.
- K. Battery operated display unit. Long operating time.



Countersunk connectors, well protected against external damage.

Battery cover. The unit is powered by four standard R14(C) batteries.

*More than 24 hours continuous operation!*

### SYSTEM D480 Part. Nr. 12-0422

- 1 Display unit D279 (with 14 measurement programs)
  - 1 Protective case
  - 2 Cables with Push/Pull connectors
  - 2 Measuring units (S, M)
  - 2 Sets of rods for measuring units (4x60mm, 8x120mm [4x2.36", 8x4.72"])
  - 2 Shaft brackets with chains
  - 2 Extension chains
  - 1 Measuring tape
  - 1 Manual
  - 1 EasyLink™ Windows® program + PC cable and USB converter *Data base software included!*
- Delivered in robust aluminium framed carrying case with contoured foam insert.



### TECHNICAL SPECIFICATIONS

#### System

Measurement distance	Up to 10 m [33 feet]
Temperature range	0–50°C [32–122°F]
Relative humidity	10–95%
Max. displayed error	+1% +1 digit
Weight (complete system)	5 kg [11 lbs]
Carrying case	WxHxD: 420x320x110 mm [16"x12"x4"]

#### Measuring units (S, M)

Type of laser	Diode laser	
Laser wavelength	635–670 nm, visible red light	
Laser safety class	Class 2	
Laser output power	< 1 mW	
Resolution	0.001 mm [0.05 mils]	<i>High resolution!</i>
Type of detectors	PSD 10x10mm [0.39" sq]	
Spirit vials	Resolution 0.5°	
Inclinometers	Electronic inclinometers, 0.1° resolution	
Thermal sensors	±1° C accuracy	
Protection	No influence from ambient light	
Housing material	Anodized aluminium	
Dimensions	WxHxD: 60x60x50 mm [2.36"x2.36"x1.97"]	
Weight	198 g [7 oz]	

#### Display unit

Type of display	Backlit dot matrix LCD. 73x73 mm [2.87"x2.87"]	
Displayed resolution	Changeable; 0.1, 0.01, 0.001mm. 5, 0.5, 0.05 mils/thou.	
Battery	4 x 1.5 V R14 (C)	
Operating time	24–48 hours depending on connected equipment	
Storage memory	1000 shaft alignment measurements	<i>Large memory!</i>
Output port	RS232 for printer and PC communication	
Keyboard	Membrane alphanumeric multi function	
Settings	Value filtering, Contrast and Unit (mil/thou/mm) etc.	
Housing material	Anodized aluminium / ABS-plastics	
Dimensions	WxHxD: 180x180x45 mm [7.1"x7.1"x1.8"]	
Weight	1250 g [2.8 lbs]	

#### Shaft brackets

Fixture	V-fixture for chain, width 18 mm [0.71"]
Material	Anodized aluminium
Shaft diameter	∅ 20–450 mm [3/4"–18"] with standard chains.

#### Rods

Material	Stainless steel
Length	60 and 120 mm [2.36" and 4.72"]

#### Cables

Type	With Push/Pull connectors
Length	2 m [78.74"]

### ACCESSORIES

#### Brackets

1. Magnetic brackets Part No. 12-0413 For axial mounting on e.g. flange, shaft or coupling.
2. Thin chain brackets Part No. 12-0037 Width 12 mm [0.47"]. With chains.
3. Sliding brackets Part No. 12-0039 For non-rotatable shafts. Min. ∅ 60 mm [2.36"].
4. Magnetic base Part No. 12-0013 For direct mounting on e.g. coupling or shaft.
5. Offset bracket Part No. 01-0076 For axial displacement of meas. units on bracket.
6. Cardan brackets Part No. 12-0125 For alignment of cardan/offset mounted machines.

#### Miscellaneous

7. Printer Part No. 03-0032 Portable thermal printer incl. cable and charger.
8. Extension cable Part No. 12-0108 Length 5 m [16 feet] (Not pictured)

Easy-Laser® is manufactured by Damalini AB, Åbäcksgatan 6B, 431 67 Mölndal, Sweden, Phone +46 31 708 63 00, Fax +46 31 708 63 50, email: info@damalini.se, www.damalini.com © 2007 Damalini AB. We reserve the right to make modifications without prior notification. Easy-Laser® is a registered trademark of Damalini AB. Windows® and Excel® are registered trademarks of the Microsoft Corporation.

### EXPANDABILITY



**D283 VIBROMETER PROBE**  
For measuring vibration level (mm/s, inch/s) and bearing condition (g-value).  
Part Nr: 12-0283



**D160 BTA DIGITAL**  
For measurement and alignment of belt drives. Complete system with display unit. Part Nr: 12-0411

### ACCESSORIES



Authorized dealer



05-0380

This product complies with:  
SS-EN60825-1-1994,  
21CFR 1040.10 and 1040.11

