Use the Xactum Intelligent Laser Micrometers as on-line diameter gauges, in the Xporeline configuration:
with no other instrument can you measure diameters so quickly, so accurately and so easily.

It's the ideal instrument for the on-line diameter monitoring of continuous products like electric cable, plastic tubes, extruded profiles, glass tubes, etc.

Thanks to Aeroel, outstanding laser technology, high accuracy, easy use and excellent reliability are offered at affordable conditions: payback can be realized in just a few months.
The Xporeline.X

The XLS gauges are programmed with a dedicated software and are completed with a display unit and a remote control: using such a measuring “system” you can monitor the diameter on-line, measuring fast moving products very accurately, to achieve 100% check and to avoid any dimensional non-conformity.

Types of measurements

It measures the diameter D and the position C of the Center of the part from the Center of the measuring field. The part can be opaque or transparent.

Measuring modes

The gauge is continuously reading the Diameter D and the Centre Position C of the product, the scan frequency of the gauge is 1500 Hz. Each single scan reading is called Single Scan Value: the related measuring repeatability is specified in the gauge performance table and it is so good that any Single Scan Value can be considered to detect any flaw that turns into a diameter change. It is therefore possible to look for small diameter changes, having a minimum length which is depending upon the scanning pitch. (1)

To improve the measuring repeatability or to filter small product irregularities, it is possible to average some N consecutive Single Scan Values and to get their average value, Instant Value; N is programmable by the user and can be as low as N=1, to make the Instant Values coincide with the Single Scan Values. The measuring repeatability of an Instant Value can be computed by dividing the single scan repeatability by the square root of the number of averaged scans N.

In addition it is also possible to consider a group of K consecutive Instant Values and among them to take the Maximum and Minimum Values and to compute their Average Value (3) and the Range=Maximum-Minimum. (4)

For instance, the following values are computed and displayed: Davg, Dmax, Dmin, Range=Dmax-Dmin and the Average Center Position. By properly setting N and K it is possible to program the system to perform flaw detection or an average diameter measurement or to measure other product dimensions that correspond to maximum and minimum values.

Exclusive Aeroel features

• The scanning motor based on the Fluid Dynamic Bearing technology, without ball bearing works perfectly, with no wear.
• The NO-VAR option allows you to automatically compensate for the expansion of the part when room temperature changes. The user only needs to program the proper coefficient of thermal expansion of the part.
• The Web Server allows you to connect the sensor through the Ethernet line to any Internet browser and “see it” as a website, where you can view the measures, set-up and program the gauge and even display the video signal (light pulse).

System composition

The Xporeline.X system is composed by:
• a single axis Xactum gauge, XLS40, XLS80 or XLS150 type
• Xporeline.X software pre loaded in the gauge
• DM-200 multi-colour LED display
• universal power supply
• an IR. Remote Control
• connecting cable L=5m, between gauge and display

Some optional accessories which are available:
• telescopic stand for the laser gauge
• compressed air windows for the gauge
• extension cables
• Hand-held programming terminal
• GageXcom software for PC communication
• PC Software for networking
Measurement examples

Measuring the average diameter and looking for flaws:
set \( N=1 \) and \( K \) large enough to smooth the diameter readings.

Strip width measurement:
a slight product twisting can improve the accuracy.

Checking corrugated product:
the peak values and the waviness can be detected.

Display and remote control

Multicolour LED display to show the measured values and to allow system programming through the IR remote control. The measured and programmed data can be scrolled on the display by using the remote control or the SET key on the display panel.

It is possible to save in memory, in a Product Library, up to 1000 different sets of programmed parameters, each one for the specific part to be checked.

The display color will change into the color corresponding to the tolerance status of the shown variable (green, orange or red).

PC interface

An external/remote computer can be connected to the system through the Ethernet/RS232 interface, to program the system or to get the measured data. The Ethernet line is very useful to network several systems.

The Web Server allows you to connect the sensor through the Ethernet line to any Internet browser and "see it" as a website.

It is possible to use the RS232 port in VT100 emulation mode, which makes it possible the connection of the system to a PC using the Windows Hyperterminal program or to a hand-held programming terminal.

Using the optional GageXcom software provided by Aeroel, you can use Excel spreadsheets to set-up the system and to get all measured results; you can write your own applications by writing suitable Excel Macros and using standard Excel functions to process data.

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(1) The scanning pitch is given by the line speed divided by the gauge scanning frequency.
(2) \( K \) is programmable by the user; its minimum value is 12.
(3) The Average Value is the result of an average over \( N \times K \) Instant values.
(4) The Max, Min, Avg and Range Values, computed over a group of \( K \) Instant Values, are called Extreme Values.
(5) When the analog output is used, 2 output lines only are available.
(6) Due to the display limitations, the 6 most significant digits only are shown; the full resolution is anyway available using the serial output ports.
(7) Windows and Excel are registered trademarks of Microsoft Corporation.
Technical characteristics

Available models

### DISPLAY AND ALARMS MODULE DM-200
- **Main Display LED**: 6 digits, 7 segments multicolour
- **Sub Display LED**: 2 digit
- **6 Warning lights**: for the Status of the Inputs and the Outputs
- **4 Outputs**: protected PNP, Imax: 100 mA
- **2 Inputs**: PNP, Ityp.: 15 mA
- **Optional analog output**: ± 10 V
- **Dimensions**: 97 x 49 x 105 mm
- **Weight**: 0.3 kg
- **Power supply**: 24 VDC 150 mA

### I.R. REMOTE CONTROL
- **Size**: 180 x 50 x 26 mm
- **Weight**: 80 g (without batteries)
- **Power supply**: 2 AAA 1.5 V batteries

### Gauge Model

<table>
<thead>
<tr>
<th></th>
<th>XPLORELINE.X40</th>
<th>XPLORELINE.X80</th>
<th>XPLORELINE.X150</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beam height (mm)</strong></td>
<td>40</td>
<td>80</td>
<td>150</td>
</tr>
<tr>
<td><strong>Measurement range (mm)</strong></td>
<td>From 0.06 to 38</td>
<td>From 0.75 to 78</td>
<td>From 0.8 to 149</td>
</tr>
<tr>
<td><strong>Scanning rate (Hz)</strong></td>
<td>1500</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Resolution (μm)</strong></td>
<td>± 0.07 at best</td>
<td>± 0.2 at best</td>
<td>± 0.4 at best</td>
</tr>
<tr>
<td><strong>Repeatability (μm)</strong></td>
<td>± 0.5 at best</td>
<td>± 1 at best</td>
<td>± 3 at best</td>
</tr>
<tr>
<td><strong>Linearity (μm)</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

Specifications subject to change without notice. For additional details and complete specifications please see the gauge data sheet.