

# ESBoltScanner

## Wheel Encoded Bolt Scanner Product Information Guide

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*Model No. ESBoltScan*



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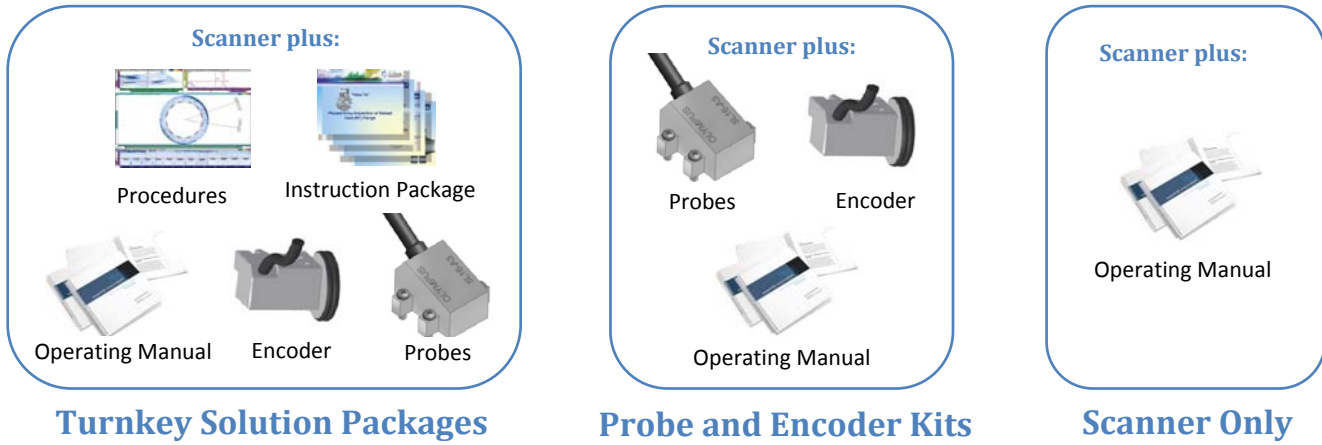
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## Product Selection



Standard Product Packages Include:

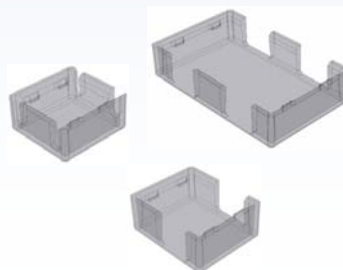


### Additional Options

On-site Support Training Program for Bolt Scanner



Probe Covers



Calibration and Target Blocks



## Table of Contents

Product Selection .....	2
Scanner Features .....	4
Overall Bolt Scanner Specifications .....	5
Intended Scanner Use .....	5
Intended User .....	5
Technical Data.....	5
Bolt Scanner Overview.....	6
Effective Clamp Hub Range.....	7
Package Contents.....	8
Accessories and Spare Parts .....	10
Clamp Hubs .....	10
Probe Contact Wear Face Covers .....	10
Calibration Equipment .....	10
Order Configurations for Flange Scanners.....	12
Kits with Probes and Encoder .....	12
Additional Bolt Scanner Options.....	13
Overall Scanner Dimensions .....	14
Contact.....	15

### Please Note:

The purpose of this guide is to provide information for product mechanical aspects and parts ordering only. It is not intended as a user guide for NDT procedures, techniques, data collection or data interpretation.

It is the responsibility of the end user to use this product in a safe manner and in accordance with any local or regional safety legislation.

The information provided by Eclipse Scientific is believed to be accurate however Eclipse Scientific accepts no responsibility for the use of this product, nor any patent infringement or other rights of third parties. Eclipse Scientific reserves the right to change specifications without notice. Please contact Eclipse Scientific for the most current product information.

## Scanner Features

- Easy to use
- Rugged & lightweight
- Straightforward analysis using either the inspection system or external software
- Non-motorized

## Available Productivity Features

- On-site start-up support
- Step-by-step instructions
- Procedures & techniques
- Bolt inspection training
- Expert personnel to perform inspections
- Calibration blocks

## Packages Tailored to Your Specific Requirements

An array of in-stock Bolt Scanner packages and kits are available to suit your immediate needs. Choose from scanner only, scanner with probes and probe covers, or the complete turnkey solution package. Customized scanners and components built to your specifications are also available.

## Calibration and Setup Blocks

Custom made bolt assemblies will match your specified requirements. Accurately machined targets calibrate the bolt scanner to provide operators with known flaw responses, complete with drawing specification package showing flaw dimensions and positions.

## Report Generation

A detailed report is easily produced with clear scan display layout options: the comprehensive defect table will clearly show defect dimensions and location.

## Overall Bolt Scanner Specifications

### Intended Scanner Use

The Wheel Encoded Bolt Scanner (ESBoltScan) provides a practical solution for performing crack detection and monitoring inspection of bolts, threaded studs or shafts. The ESBoltScan can determine the extent of corrosion and identify cracking without removal of the bolts, thus eliminating downtime by performing inspections on site.

The ESBoltScan bolt/stud/shaft inspection system has an upper probe housing which clamps the probe in place. The probe can be adjusted up and down to reach studs that are proud or below the nut surface. The probe can also be adjusted back and forth on the bolt head, stud or shaft surface to achieve optimum scanning position. Adjustable spring mounting ensures probe contact force is evenly applied over the surface, and protective wear face plates ensure that the phased array probe does not suffer any abrasion damage. The optional Eclipse Procedure, Techniques and How-To instruction set ensure you complete the job in the shortest possible time and with the greatest amount of accuracy and repeatability.

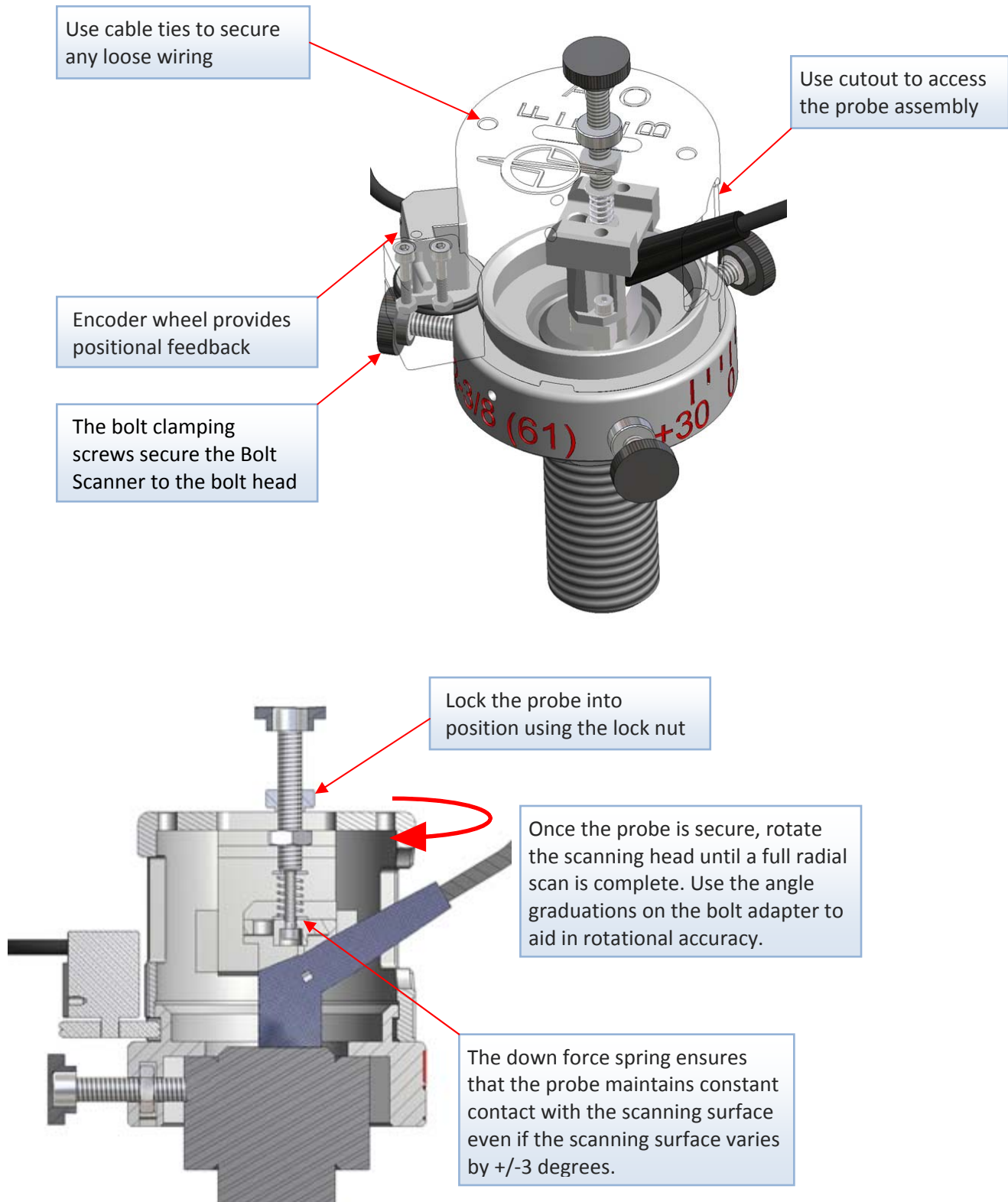
### Intended User

The bolt scanner is a manual scanner, intended to be used by one or more personnel being without limitations in the physical abilities of the upper and lower limbs, sight, or hearing and who are fully trained in the handling of UT, bolt scanning equipment.

## Technical Data

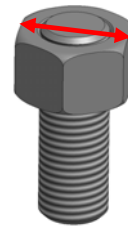
<i>Model Number:</i>	<i>ESBoltScan</i>
<i>Encoder Type:</i>	<i>ONDT Mini-Wheel Encoder</i>
<i>Probe Type:</i>	<i>ONDT A0, A1 &amp; A3</i>
<i>Net Weight:</i>	<i>Approx. 0.5 kg (1 lb)</i>
<i>Temperature Range:</i>	<i>-10°C to + 45°C</i>

## Bolt Scanner Overview



## Effective Clamp Hub Range

Each clamping hub is marked with a size that represents the maximum width across flats (WF) of the size of bolt head or nut that will fit the hub. The minimum diameter of bolt or stud is determined by the *aperture opening* of the clamping hub probe size which is marked on the top of the rotating scanning head.



Width across flats on bolt head and nuts

A3 probe hub



Max.WF=3 1/8" (81 mm)  
Fits bolt sizes:  
Min. 1 3/8" (M35)  
Max. 2" (M52)  
**Detection Depth: 12"**

A1 probe hub



Max.WF=2 3/8" (61 mm)  
Fits bolt sizes:  
Min. 1" (M27)  
Max. 1 1/2" (M39)  
**Detection Depth: 6"**

A0 probe hub



Max.WF=1 5/8" (42 mm)  
Fits bolt sizes:  
Min. 3/4" (M20)  
Max. 1" (M27)  
**Detection Depth: 4"**

Small A0 probe hub



Max.WF=1 1/4" (32 mm)  
Fits bolt sizes:  
Min. 1/2" (M12)  
Max. 3/4" (M20)  
**Detection Depth: 4"**

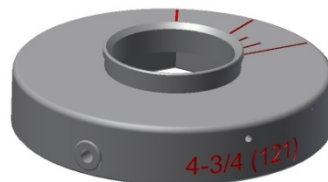
## Optional Hubs for A3 probe

WEB-HCH102



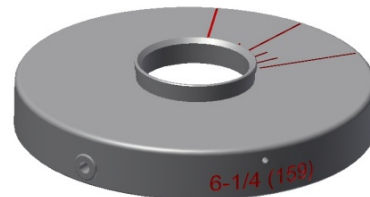
Max.WF=4" (102 mm)  
Fits bolt sizes:  
Min. 2" (M52)  
Max. 2 1/2" (M64)  
**Detection Depth: 20"**

WEB-HCH121



Max.WF=4 3/4" (121 mm)  
Fits bolt sizes:  
Min. 2 1/2" (M64)  
Max. 3" (M80)  
**Detection Depth: 28"**

WEB-HCH159



Max.WF=6 1/4" (159 mm)  
Fits bolt sizes:  
Min. 3" (M80)  
Max. 4" (M105)  
**Detection Depth: 28"**

## Package Contents

### Probes



5L10-A0 Probe

OR

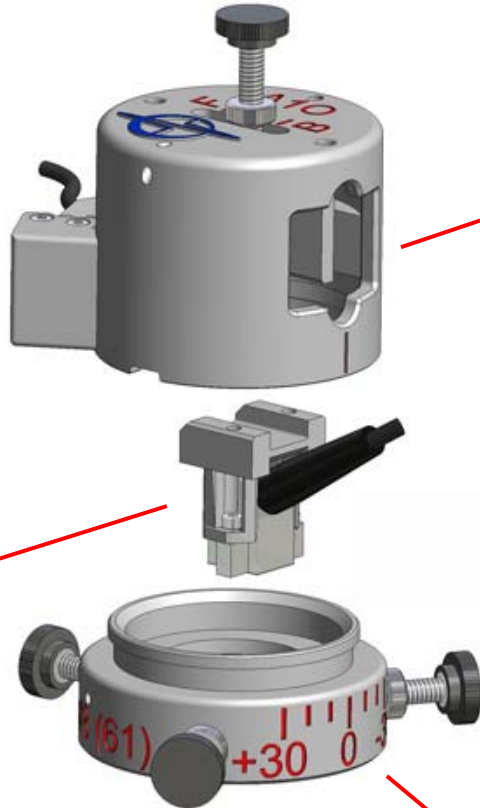


10L32-A1 Probe

OR



5L16-A3 Probe



### Bolt Scanners

**1x** ESBoltScan-A0  
For sizes:  $\frac{3}{4}$ " - 1"  
(M20 – M27)

OR

**1x** ESBoltScan-A1  
For sizes: 1" - 1½"  
(M27 – M39)

OR

**1x** ESBoltScan-A3  
For sizes: 1½" – 2"  
(M35 – M52)  
*(Shown with optional Large Clamp Hub)*

### Clamp Hubs



**1x** Small Clamp Hub  
For sizes:  $\frac{1}{2}$ " –  $\frac{3}{4}$ "  
(M12 – M20)

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**1x** Wheel Encoder



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**1x** Wear face cover for A0 probe



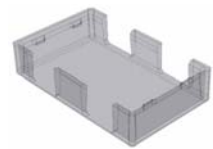
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**1x** Wear face cover for A1 probe



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**1x** Wear face cover for A3 probe



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**3x** Stud adaptor, flanged nuts



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**1x** Tool Kit

- 1.5 mm hex key
- 2.5 mm hex key



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**1x** Carrying Case



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## Documentation

- Product Manual
- Bolt Scanner Order Guide
- Specification sheets for probes (*Kit models only*)
- Specification sheets for wedges (*Kit models only*)
- Certificate of conformance
- Product feedback form



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## Accessories and Spare Parts

### Clamp Hubs

**WEB-HCH102**, Hex Clamp Hub for A3 Bolt Scanner



**WEB-HCH121**, Hex Clamp Hub for A3 Bolt Scanner



**WEB-HCH159**, Hex Clamp Hub for A3 Bolt Scanner



### Probe Contact Wear Face Covers

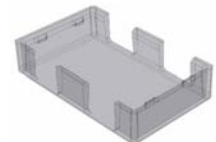
**PWFC-A00**, Wear face cover for A0 probe



**PWFC-A10**, Wear face cover for A1 probe



**PWFC-A30**, Wear face cover for A3 probe



### Calibration Equipment

**CBK-11018**, Distance and beam index calibration block, Metric

**CBK-21018**, Distance and beam index calibration block, Imperial



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**WEB-DS1**, Demo Stand for Bolt Scanner – with 1” test bolts



Bolt Scanner not included

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**WEB-SPK**, Spare Parts Kit for Bolt Scanner



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## Order Configurations for Flange Scanners

### Kits with Probes and Encoder

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Note: See *Effective Clamp Hub Range* on page 7 to determine the best Scanner/Hub configuration

#### **ESBOLTSCAN-A0**, A0 Encoder and Probe Kit

- 1x Bolt Scanner for small bolt sizes 1/2" to 1" (M12- M27)
- 1x 5L10-A0 Probe
- 1x Mini-Wheel Encoder
- 3x Probe Contact Wear Faces -for probe protection

#### **ESBOLTSCAN-A1**, A1 Encoder and Probe Kit

- 1x Bolt Scanner for medium bolt sizes 1" to 1-1/2" (M27-M39)
- 1x 10L32-A1 Probe
- 1x Mini-Wheel Encoder
- 3x Probe Contact Wear Faces -for probe protection

#### **ESBOLTSCAN-A1-M**, Metallic A1 Encoder and Probe Kit

- 1x Bolt Scanner for medium bolt sizes 1" to 1-1/2" (M27-M39)
- 1x 10L32-A1 Probe
- 1x Mini-Wheel Encoder
- 3x Probe Contact Wear Faces -for probe protection

#### **ESBOLTSCAN-A3**, A3 Encoder and Probe Kit

- 1x Bolt Scanner for large bolt sizes 1-3/8" to 2" (M35-M52)
- 1x 5L16-A3 Probe
- 1x Mini-Wheel Encoder
- 3x Probe Contact Wear Faces -for probe protection

#### **ESBOLTSCAN-A3X**, A3X Encoder and Probe Kit

- 1x Bolt Scanner for extra large bolt sizes 2" to 2 1/2" (M52-M64)
- 1x 5L16-A3 Probe
- 1x Mini-Wheel Encoder
- 3x Probe Contact Wear Faces -for probe protection

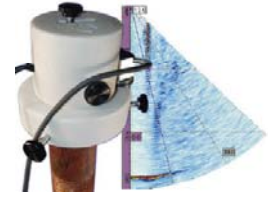
#### **ESBOLTSCAN-K**, Full Bolt Scanner Kit

- 1x Bolt Scanner for small bolt sizes 1/2" to 1" (M12-M27)
- 1x Bolt Scanner for medium bolt sizes 1" to 1-1/2" (M27-M39)
- 1x Bolt Scanner for large bolt sizes 1-3/8" to 2" (M35-M52)
- 1x Adaptor for extra large bolt sizes 2" to 2 1/2" (M52-M64)
- 1x 5L10-A0 Probe
- 1x 10L32-A1 Probe
- 1x 5L16-A3 Probe
- 1x Mini-Wheel Encoder
- 1x Probe Contact Wear Face Set (1 cover for each probe)

## Additional Bolt Scanner Options

**ESBOLTSCAN-P**, Procedure and Techniques Package,  
Procedures specifically designed to ensure accurate, reliable results to match your scanning requirements.

Includes setup files and ESBeamTool samples files



**ESBOLTSCAN-T**, "How To" Instruction Package,  
A clear and simple instruction package showing how to inspect bolts using Phased Array.

The program has an easy to follow, step-by-step, graphical format presented using MS PowerPoint showing:

- Planning Inspection and acquisition
- Basic background knowledge – layout and principles
- Principles of analysis, OmniScan and TomoView
- Bolt data review detailed



Does NOT include hands on or onsite instructor training.

**ESBOLTSCAN-TOS**, On-site Support Training Program for the Bolt Scanner

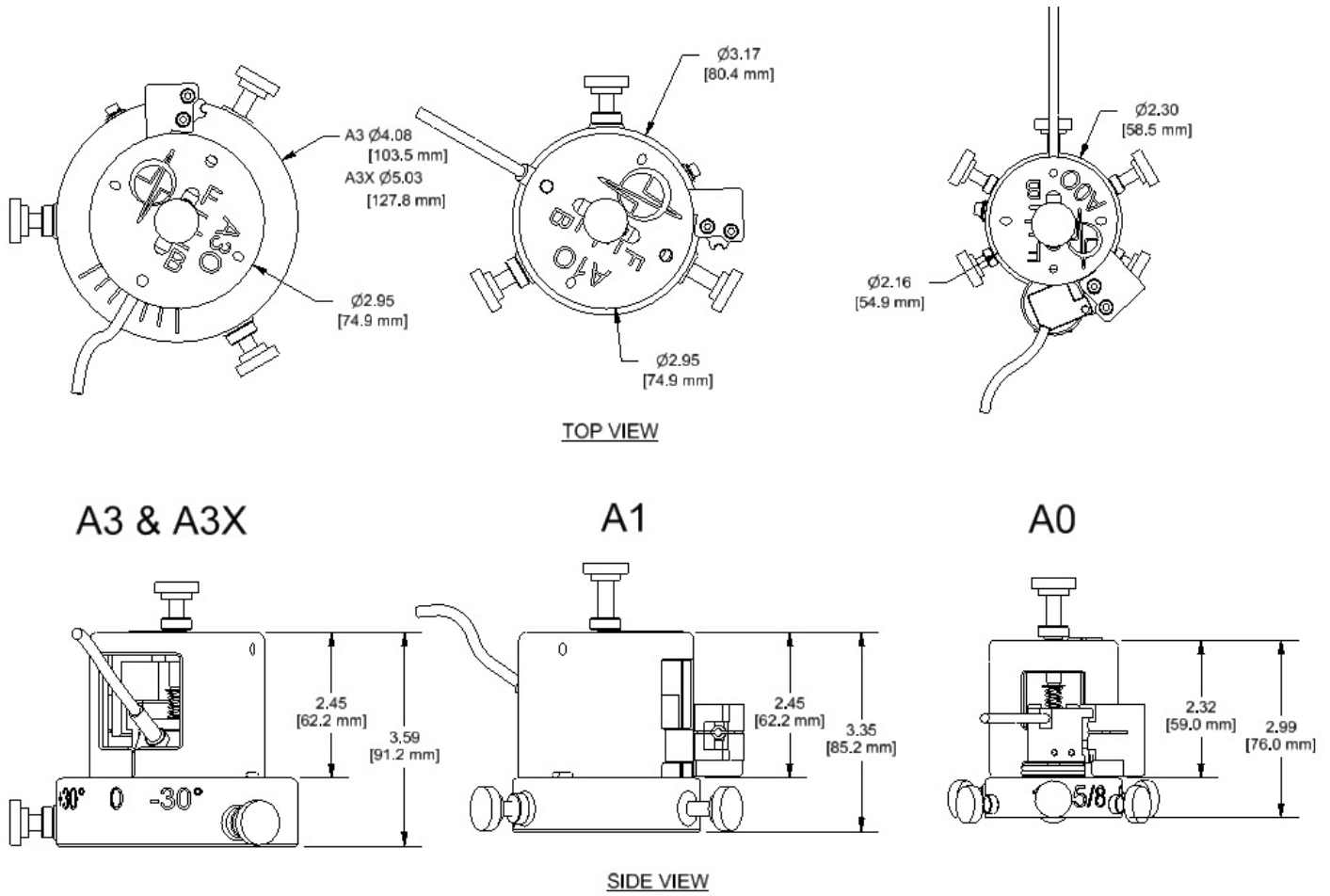
An intensive on-site and/or in-house training program for the inspection bolts using Phased Array which includes:

- Expert, hands on training, done by an with an Eclipse Phased Array expert, showing how to use the Bolt scanning system on actual bolt target blocks.
- Training can be done either on-site of in-house at the Eclipse Scientific training center and is specifically tailored to match your bolt scanning job requirements.
- The training course will follow an easy-to-use instruction package with a step-by-step, graphical format presented using MS PowerPoint showing:
  - Planning Inspection and acquisition
  - Basic background knowledge – layout and principles
  - Principles of analysis, OmniScan and TomoView
  - Bolt data review detailed
  - Preparing for the inspection (quality management)
  - More acquisition and analysis detail



**Please call Eclipse for a customized quotation for this item.**

## Overall Scanner Dimensions



## Contact



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