MIZ-21C PROBE AND ACCESSORY GUIDE

STANDARD PRODUCT CATALOG

Eddyfi Technologies

Recommended Probe Capability Matrix for Surfaces, Welds, Holes

Flaw Type / Probe Type (Model)	Surf-X (XPSC)	Pencil (DPT/DPTU)	Blade (BLD)	Slide (SLD)	Ring (RNG)	Spot (SPT)	Weld (WSPPP, WSPXP)	Conductivity (T/D)	Rotating (AFRTP, ARTP, CRTP, RTP)	Manual Bolt Hole / Countersink (MBHP, MCSP)
Crack detection and characterization	★	✓	✓	✓	✓	✓	✓	☒	★	✓
Corrosion	★	✓	✓	✓	✓	✓	✓	☒	★	✓
Pitting	★	✓	✓	✓	✓	✓	✓	☒	★	✓
Nonferrous weld	★	●	●	☒	☒	☒	✓	☒	☒	☒
C-scan / 3D resolution	★	☒	☒	☒	☒	☒	☒	☒	★	✓
Countersinks	☒	☒	☒	☒	☒	☒	☒	☒	★	✓
Paint thickness	★	●	●	☒	☒	●	●	★	☒	☒
Conductivity	☒	☒	☒	☒	☒	☒	☒	★	☒	☒

★ Best method for speed and flaw characterization

✓ The test method has proven results for the specific application

● The test results obtained from the test method can be interpreted reasonably

☒ Test method is not suitable or non-reliable in terms of repeatability

Probe Connector Pictures

Microdot Female

Triax Male

3 Pin Female

4 Pin Amphenol Male

4 Pin LEMO Female

4 Pin Fischer
Large (MIZ-1 A/B)

4 Pin Fischer (102)
Small 4 female

5 Pin Cannon Male

12 Pin LEMO Female

BNC Male

6 Pin Jaeger Female

00 LEMO Female

BNC Female

Rotating Scanner Probe Connectors

4 Pin Step LEMO

4 Pin Step Fisher

Rotating Scanner to MIZ-21C Connectors

MIZ-21C 18Pin to Zetec 18Pin

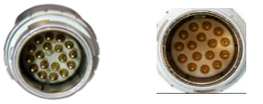
Eddyfi Part Number:

ZES-ADP-MIZ-21C_18-PIN_TO_18-PIN_RS_6FT

MIZ-21C 18Pin to GE 12Pin

Eddyfi Part Number:

ZES-ADP-MIZ-21C_18-PIN_TO_12-PIN_6FT



MIZ-21C 18Pin to Olympus 16Pin

Eddyfi Part Number:

ZES-ADP-MIZ-21C_18-PIN_TO_16-PIN_RS_6FT

MIZ-21C Instrument Connectors

26 Pin Surface Array

18 Pin for Handling and Rotating Scanners

MIZ-21C Instruments / ZM-5 Rotating Scanner

Sales Part No	Eddyfi Part Number	Comments
	Instruments/Scanner	
111A901-00	ZES-HHT-MIZ-21C-SF	Single Frequency
111A902-00	ZES-HHT-MIZ-21C-DF	Dual Frequency. Supports ZM-5 Rotating Scanner
111A903-00	ZES-HHT-MIZ-21C-ARRAY	Supports Surf-X array probes.
111A904-00	ZES-HHT-MIZ-21C-SF_WIRELESS-LOCKED	No wireless connectivity
111A905-00	ZES-HHT-MIZ-21C-DF_WIRELESS-LOCKED	No wireless connectivity
111A906-00	ZES-HHT-MIZ-21C-ARRAY_WIRELESS-LOCKED	No wireless connectivity
169A000-00	ZES-SCN-ZM-5_ROTATING_SCANNER	Scanner only
169A901-00	ZES-SCN-ZM-5_ROTATING_SCANNER_KIT	Scanner with cable and carrying case
	Instruments Upgrades	
10057306	ZES-HHT-MIZ-21C UPGRADE C TO ARRAY	
10057307	ZES-HHT-MIZ-21C UPGRADE SF TO ARRAY	
10057305	ZES-HHT-MIZ-21C UPGRADE SF TO C	

Cables for MIZ-21CV Array Surf-X Probes

Eddyfi Part Number	MIZ-21C Array Connector	Cable Length
ZES-ADP-MIZ-21C_26-PIN_TO_26-PIN_6FT	26-PIN	1.8 m (6 ft)
ZES-ADP-MIZ-21C_26-PIN_TO_26-PIN_13FT	26-PIN	4 m (13 ft)
ZES-ADP-MIZ-21C_26-PIN_TO_26-PIN_33FT	26-PIN	10 m (33 ft)
ZES-ADP-MIZ-21C_26-PIN_TO_26-PIN_65FT	26-PIN	20 m (65 ft)

Cables for MIZ-21C Rotating Scanners

Eddyfi Part Number	MIZ-21C Connector	Cable Length	MIZ-21C to Scanner Connector
ZES-ADP-MIZ-21C_18-PIN_TO_18-PIN_RS_6FT	18-PIN	1.8 m (6 ft)	18-PIN ZETEC SCANNER
ZES-ADP-MIZ-21C_26-PIN_TO_26-PIN_90_6FT	18-PIN	1.8 m (6 ft)	18-PIN ZETEC SCANNER with 90°connector to the ZM-5 scanner
ZES-ADP-MIZ-21C_18-PIN_TO_18-PIN_RS_16FT	18-PIN	5 m (16 ft)	18-PIN ZETEC SCANNER
ZES-ADP-MIZ-21C_Y_TO_18-PIN_6FT	18-PIN	1.8 m (6 ft)	18-PIN ZETEC SCANNER
ZES-ADP-MIZ-21C_18-PIN_TO_12-PIN_6FT	18-PIN	1.8 m (6 ft)	Y adapter to allow for absolute and reflection to be run on the ZM-5 simultaneously
ZES-ADP-MIZ-21C_18-PIN_TO_16-PIN_RS_6FT	18-PIN	1.8 m (6 ft)	12-PIN Male LEMO GE SCANNER (MiniDrive); Hocking (33A100); Ether (ARD002)
ZES-ADP-MIZ-21C_18-PIN_TO_8-PIN_PG_6FT	18-PIN	1.8 m (6 ft)	16-PIN OLYMPUS SCANNER (MiniMite)
ZES-ADP-MIZ-21C_18-PIN_TO_12-PIN_PG_6FT	18-PIN	1.8 m (6 ft)	16-PIN OLYMPUS (SpitFire 2000); RA 2000
ZES-ADP-MIZ-21C_18-PIN_TO_8-PIN_RS_6FT	18-PIN	1.8 m (6 ft)	8-PIN LEMO. For use with Zetec 2000-02-01 or 10013082 (Rotating Scanner); 2000-02-05 (Indexing Scanner)
ZES-ADP-MIZ-21C_18-PIN_TO_12-PIN_PG_6FT	18-PIN	1.8 m (6 ft)	12-PIN LEMO For use with Zetec 2100-02-10 or 10015217 (ZS-4)
ZES-ADP-MIZ-21C_18-PIN_TO_8-PIN_RS_6FT	18-PIN	1.8 m (6 ft)	8-PIN Rohmann (MR3-MF) and (MR3-HF)

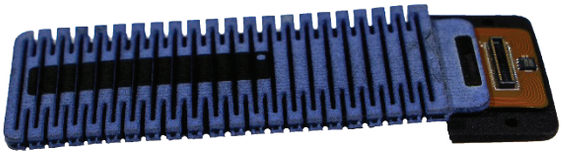
Cables for MIZ-21C Probe Heads

Eddyfi Part Number	Handle Length	Cable Length	Probe Head / Scanner Connector
ZES-ADP-MIZ-21C_18-PIN_TO_MICRODOT_6FT	No Handle	1.8 m (6 ft)	MICRODOT
ZES-ADP-MIZ-21C_18-PIN_TO_MICRODOT	No Handle	0.3 m (1 ft)	MICRODOT
ZES-ADP-MIZ-21C_18-PIN_TO_TRIAX_6FT	No Handle	1.8 m (6 ft)	Male TRIAX (LEMO or Fischer)
ZES-ADP-MIZ-21C_18-PIN_TO_3-PIN_6FT	63 mm (2.5 in)	1.8 m (6 ft)	3-PIN
ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_F_1FT	No Handle	0.3 m (1 ft)	4-PIN FISCHER Large
ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_F_6FT	No Handle	1.8 m (6 ft)	4-PIN FISCHER Large
ZES-ADP-MIZ-21C_18-PIN_TO_BNC_1FT	No Handle	0.3 m (1 ft)	BNC female and cable
ZES-ADP-MIZ-21C_18-PIN_TO_BNC_6FT	No Handle	1.8 m (6 ft)	Probe has BNC male connector
ZES-ADP-MIZ-21C_18-PIN_TO_BNC	No Handle	No Cable	BNC male and cable
ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_A_1FT	No Handle	0.3 m (1 ft)	Probe has BNC female connector
ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_L_6FT	No Handle	1.8 m (6 ft)	BNC female
ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_M_6FT	No Handle	1.8 m (6 ft)	Probe has BNC male connector
ZES-ADP-MIZ-21C_18-PIN_TO_2MICRODOT_6FT	No Handle	1.8 m (6 ft)	4-PIN Amphenol and cable
ZES-ADP-MIZ-21C_18-PIN_TO_12-PIN_1FT	No Handle	0.3 m (1 ft)	4-PIN Female LEMO
ZES-ADP-MIZ-21C_18-PIN_TO_2-PIN_1FT	No Handle	0.3 m (1 ft)	4 PIN MICROTECH
ZES-ADP-MIZ-21C_18-PIN_TO_2-PIN_6FT	No Handle	1.8 m (6 ft)	Dual (2) MICRODOT
ZES-ADP-MIZ-21C_18-PIN_TO_4-PIN_F102_6FT	No Handle	1.8 m (6 ft)	GE / Hocking probes with 12-PIN Male LEMO and cable. May need different adapters for refection and differential / absolute probes.

EDDY CURRENT SURFACE ARRAY PROBES

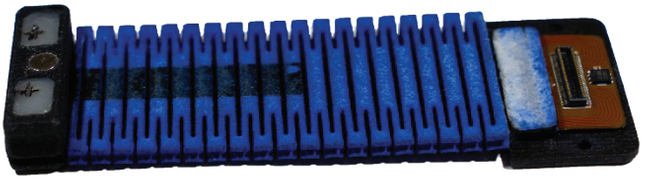
Eddy current surface array probes allow for fast inspection of surfaces with varying materials and geometries utilizing the eddy current technique. Surface preparation is not necessary as compared to penetrant inspection methods. Additionally, there are no chemical usage or environmental concerns as compared to Magnetic Particle or penetrant inspection methods.

PSC Surf-X™ Flexible Array Probe Family



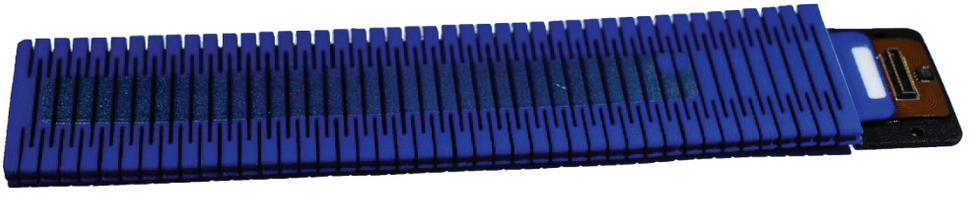
32 Coil Flexible Array Probes

32 Coil Tape Array Probes



32 Coil Weld Array Probes

Optional Encoder



32 Coil Flexible Low Frequency Array Probes

Ultimate Probe Flexibility

The Surf-X family of flexible Eddy Current array probes features unique multiple coil sets and proprietary X-PROBE™ technology. Surf-X array probes can quickly and accurately test a wide range of materials and geometries saving valuable inspection time, while delivering high quality results.

With interchangeable electronics module, cable, detachable encoder and coil sets, Surf-X array probes provide flexibility and cost efficiencies like never before.

Features and Benefits

Save Time and Money

- Electronics module, cable and detachable encoder can be used interchangeably and re-used with any subsequent Surf-X array probe coil sets (two types available: MIZ-21C and MIZ-200)
- Field interchangeable coil sets easily adapt to different materials and surface geometries at the inspection site
- Detachable handles to accommodate different applications and complex geometries
- Preset test configurations
- Ability to revise filters to optimize results

Fast Inspection, No Chemicals

- Chemical Testing Replacement: Surface array probes are a cost-effective, chemical free replacement for Liquid Penetrant Testing (PT) and Magnetic Particle Testing (MT)
- Single Sensor Probe Replacement: The surface array option can reduce inspection time by up to 95% versus traditional pencil probes/conventional handheld surface probes

Accurate, High Quality Results

- Faster and more complete coverage vs. traditional handheld probes
- Rotatable Encoder is standard, providing easy identification of flaw locations and dimensions
- Position indicators on the probe help with alignment and ensure the entire area of interest is inspected
- Patented and proven X-PROBE technology-based coil set delivers added dependability and accuracy
- Operates in absolute and multiple modes of driver pickup

For a lower total cost, excellent data quality and reduced inspection time compared to other methods, consider Surf-X array probes from Eddyfi Technologies.

Smart Options

A key advantage of the Surf-X array probe family is the highly flexible design featuring interchangeable multiple coil sets. With Surf-X array probes, users in the field can change a coil set in less than a minute enabling the probe to easily adapt to different materials and surface geometries at the inspection site.

Interchangeable Surf-X Coil Sets

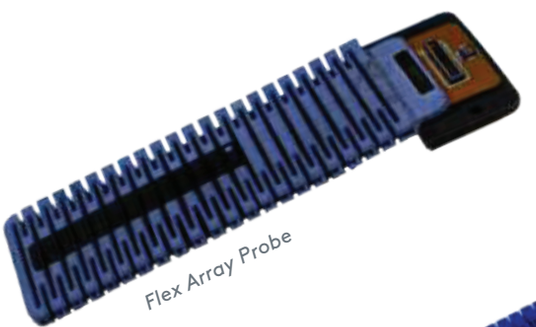
Surf-X Weld Array Probe: Innovative and patent pending mix of array and +point™ coils. The +point coils find indications in the hard to inspect weld toes while the array coils quickly inspect the remaining weld and heat affected zones. Handles have been designed to make inspecting butt and t-welds a breeze.

Surf-X Flex Array Probe: Flexible probe allowing detailed inspection on all materials and many geometries. Ideal for testing rows of flush rivets, replacing handheld probes. Replace your die penetrant testing on helicopter spars, train wheels or mining drums.

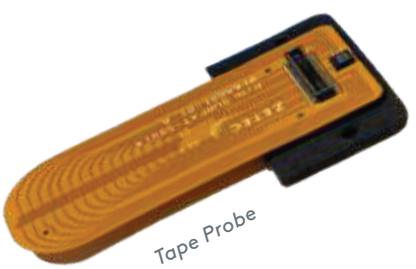
Surf-X Low Frequency Flex Probe: Ideal for testing thicker plates to find both near and far side indications. Can be used with a bend radius of 2 inches or larger.

Surf-X Tape Probe: Ideal for testing smooth surfaces and complex geometries such as turbine dovetails. Capable of finding very tiny surface flaws.

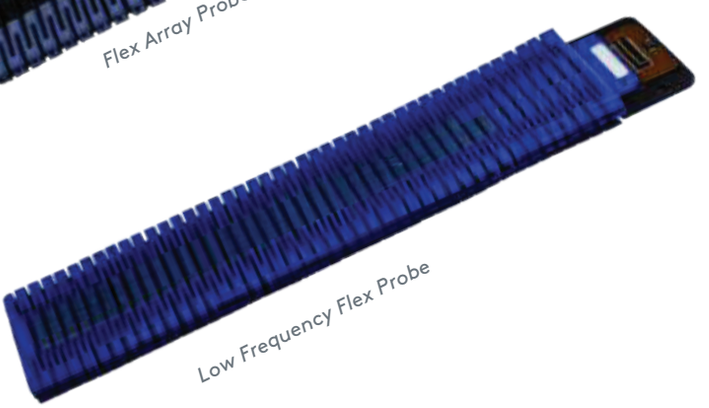
Weld Array Probe



Flex Array Probe



Tape Probe



Low Frequency Flex Probe

Versatile Electronics Module and Cable

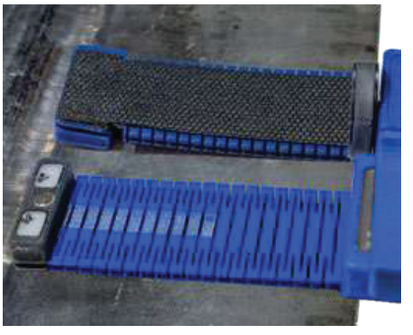
The Surf-X array probe's electronics module and cable design offers breakthrough inspection efficiencies. These components can be used interchangeably across probe coil sets delivering material cost savings after initial purchase.

With subsequent Surf-X array probe purchases, the module and cable can be re-used saving time and money.

Rotatable and Detachable Encoder

Surf-X array probes come with a highly versatile, detachable encoder that can connect in multiple locations on both the handle and electronics module providing maximum versatility when it comes to dealing with multiple positions as you probe. For cost efficiency, the encoder can be used and re-used interchangeably with all Surf-X array probe coil sets.

Wear Surface Options



SuperFabric

Surf-X interchangeable coil sets come with wear surface options:

- **UHMW** for inspecting small indications on smoother materials.
- **Cloth wear surface** for protecting the array coils on smooth or polished surfaces. Ideal for airplane skins or smooth curved surfaces.
- **SuperFabric** for protecting array coils on rough surfaces like Butt and T-Welds.

Probe Options to Meet Your Specific Needs

	Surf-X Weld Array	Surf-X Flex Array	Surf-X Low Frequency Flex	Surf-X Tape
Model (MIZ-21C)	XPSWC/XPSW	XPSFC/XPSF	XPSFC/XPSF	XPSFTC/XPSFT
Applications	Machine welds	Rows of airplane rivets, Mining equipment, train wheels	Multi-layer airplane skins and thick wall pipes	Surface cracks on smooth surfaces. Turbine roots
Materials	Ferrous, non-ferrous	Ferrous, non-ferrous	Ferrous, non-ferrous	Ferrous, non-ferrous
Subsurface	Non-ferrous	Non-ferrous	Non-ferrous	Non-ferrous
Surface	Ferrous, non-ferrous	Ferrous, non-ferrous	Ferrous, non-ferrous	Ferrous, non-ferrous
Min. Crack Length	0.7 mm (0.026 in)	0.7 mm (0.026 in)	2.0 mm (0.082 in)	0.5 mm (0.021 in)
Freq Range Driver Pickup	50 – 2800 kHz	50 – 2800 kHz	1 – 85 kHz	1 - 4 MHz
Penetration	4 mm (0.16 in)	4 mm (0.16 in)	6.4 mm (0.25 in)	Surface
Coverage 32 coil (2x16)	43 mm (1.7 in)	43 mm (1.7 in)	102 mm (4.0 in)	28 or 56 mm (1.1 or 2.2 in) depending on coil diameter (see below)
Coil diameter	2mm (0.079 in) 2 +points	2 mm (0.079 in)	6.4 mm (0.25 in)	1.6 mm (0.063 in) 3.2 mm (0.126 in)
Bend radius with wear surface	12.7 mm (0.5 in)	12.7 mm (0.5 in)	50.8 mm (2.0 in)	6.3 mm (0.25 in)

Component Measurements

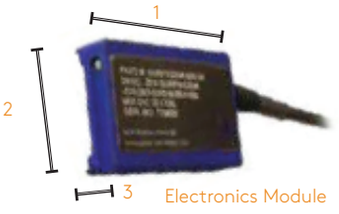
Electronics Module & Encoder	(1) Length	(2) Width	(3) Height
Electronics Module 32 Coil	59.4 mm (2.34 in)	39.9 mm (1.57 in)	13.0 mm (0.51 in)
Encoder (Height is wheel)	31.2 mm (1.23 in)	29.5 mm (1.16 in)	25.4 mm (1.00 in)

Coil Sets	(1) Length	(2) Width	(3) Height	(4) EM† to Coil 1	(5) EM† to Tip
SURF-X Flex*, **	76.5 mm (3.01 in)	32 mm (1.26 in)	N/A	30.5 mm (1.2 in)	78.5 mm (3.09 in)
SURF-X Weld*, **	95 mm (3.74 in)	32 mm (1.26 in)	N/A	30.5 mm (1.2 in)	76.5 mm (3.01 in)
SURF-X Low Freq*, **	173 mm (6.81 in)	39.9 mm (1.57 in)	N/A	27.9 mm (1.1 in)	154.4 mm (6.08 in)
SURF-X Tape 32 coil 1.6mm*	54.6 mm (2.15 in)	24.1 mm (0.95 in)	N/A	8.9 mm (0.35 in)	36.1 mm (1.42 in)
SURF-X Tape 32 coil 3.2mm*	80 mm (3.15 in)	24.1 mm (0.95 in)	N/A	7.9 mm (0.31 in)	61.5 mm (2.42 in)

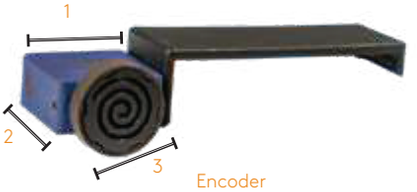
**Measurements do not include electronics module cover attached to probes.*

*** Includes limiter in length and width measurement.*

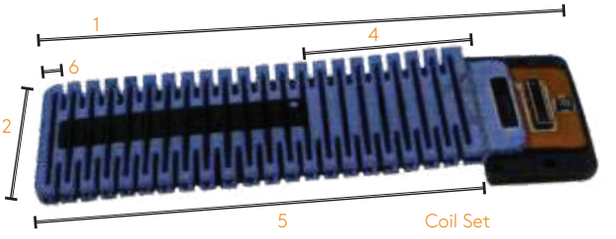
†EM = Electronics Module



Electronics Module



Encoder



Coil Set

ORDERING INFORMATION

Electronics Module

Cable Length	MIZ-21C 32 Coil
1.8 m (6 ft)	ZES-SURFXCEM-S00-06
4 m (13 ft)	ZES-SURFXCEM-S00-13
10 m (33 ft)	ZES-SURFXCEM-S00-33

Detachable Encoder

Component	Eddyfi Part Number
Detachable Encoder	ZES-SURFXEN-E00.000-0-0000000

Interchangeable Coil Sets

Wear Surface	Weld	Flex	Low Frequency
	32 Coil	32 Coil	32 Coil
None	NA	NA	NA
Cloth	ZES-SURFX/W-E01.700-2X16/50-2800/2PP-01	ZES-SURFX-E01.700-2X16/50-2800-0001001	ZES-SURFX-E04.000-2X16/1-85-0001001
SuperFabric	ZES-SURFX/W-E01.700-2X16/50-2800/2PP-02	ZES-SURFX-E01.700-2X16/50-2800-0001002	ZES-SURFX-E04.000-2X16/1-85-0001002
UHMW	NA	ZES-SURFX-E01.700-2X16/50-2800-0001003	ZES-SURFX-E04.000-2X16/1-85-0001003

Interchangeable Tape Probes

Wear Surface	Tape 3.2mm	Tape 1.6mm
	32 Coil	32 Coil
None	ZES-SURFX/T-E02.200-2X16/1-4-0002000	ZES-SURFX/T-E01.100-2X16/1-4-0001000
Cloth	NA	NA
SuperFabric	NA	NA
UHMW	ZES-SURFX/T-E02.200-2X16/1-4-0002003	ZES-SURFX/T-E01.100-2X16/1-4-0001003

Aerospace Probe Starter Kit

Eddyfi Part Number	Description
BLD-001	BLD = Detachable Blade Probe Straight (for Blade Probes, Probe Diameter is the blade thickness); Item Diameter: 0.060in (1.5mm); Coil: 250= 50-500 kHz; Length: 6in (152mm); Connector: 1 Pin Female Triaxial Connector Handheld
SLD-001	SLD = Detachable Sliding Probe with Reflection (Driver Pick-up Coils); Item Diameter: 0.500in (12.7mm); Coil: 1-100 kHz; Length: No cable; Connector: 1 Pin Female Triaxial Connector Handheld; MIZiD: No; Coil Diameters 0.500" (12.7mm)
SPT-001	SPT = Detachable Spot Probe with Reflection (Driver Pick-up Coils); Item Diameter: 0.400in (10.2mm); Coil: .5 - 60 kHz; Length: No cable; Connector: 1 Pin Female Triaxial Connector Handheld; MIZiD: No; Coil Diameters 0.400" (10.2mm)
RNG-001	RNG = Detachable Ring Probe with Reflection (Driver Pick-up Coils); Item Diameter: 0.670in (17mm); Coil: 047= .1-100 kHz; Length: No cable; Connector: 1 Pin Female Triaxial Connector Handheld; MIZiD: No; Coil Diameters: 0.670" (25.5mm) Internal Diameter, 1.100" (17.0mm) outer diameter
DPT90-002	DPT90 = Detachable Pencil Tip Probe 90 Degree Shielded; Item Diameter: 0.125in (3.2mm); Coil: 250= 50-500 kHz; Length: 5in (127mm); Connector: 1 Pin Female Triaxial Connector Handheld; MIZiD: No; Drop is 0.5 inch (12.7mm)
DPT45-002	DPT45 = Detachable Pencil Tip Probe 45 Degree Shielded; Item Diameter: 0.125in (3mm); Coil: 250= 50-500 kHz; Length: 5in (127mm); Connector: 1 Pin Female Triaxial Connector Handheld; MIZiD: No; Drop is 0.5 inch (12.7mm)
DPT-002	DPT = Detachable Pencil Tip Probe Straight Shielded; Item Diameter: 0.125in (3mm); Coil: 250= 50-500 kHz; Length: 5in (127mm); Connector: 1 Pin Female Triaxial Connector Handheld
ZES-ADP-MIZ-21C_18-PIN_TO_TRIAX_6FT	Adapter cable for MIZ-21C, 18-pin LEMO to female Triax probes, 1.8 meter (6 ft).

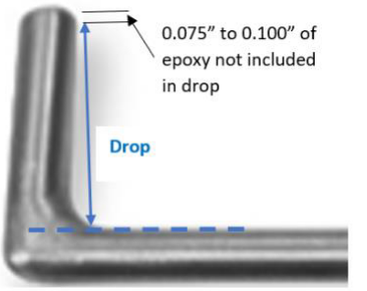
PENCIL PROBES

- Designed for general crack detection.
- Microdot connectors are absolute with no internal balance coil
- Triax connectors are absolute bridge with internal balance coil
- Models DPTR, DPT45R & DPT90R are Triax connectors for reflection mode
- Ferrite Core Pancake Coils with Shielded or Unshielded options
- Standard drop is 63.5 mm (2.5 in). Other drops upon request.
- Will detect indications down to approximately ½ the coils diameter
- Handle length is 63.5 mm (2.5 in)

DPT DPTR Detachable Tip Pencil Probe Straight Shielded
DPTU Detachable Tip Pencil Probe Straight Unshielded

DPT45 DPT45R Detachable Tip Pencil Probe 45° Degree Shielded
DPT45U Detachable Tip Pencil Probe 45° Unshielded

DPT90 DPT90R Detachable Tip Pencil Probe 90° Shielded
DPT90U Detachable Tip Pencil Probe 90° Unshielded



Probe Shaft Diameter, Coil OD for Each Shaft Size	Connector to Tip Lengths	Frequencies Options	Connector Options
3.2 mm (0.125 in)*, 1.5 mm (0.058 in) 2.4 mm (0.093 in), 1.3 mm (0.050 in) 1.8 mm (0.072 in), 1.2 mm (0.049 in) 1.6 mm (0.062 in)***, 1.2 mm (0.049 in) 3.2 mm (0.125 in) is smallest size for reflection mode	101.6mm (4 in) 127 mm (5 in)* 152.4 mm (6 in) Custom	5-50 kHz 50-500 kHz* 500 kHz-1 MHz 1-3 MHz (0.125 in shaft only)** 1-6 MHz (0.125 in shaft only)**	Microdot Triax*

* Most common – Custom options are available for all items
** Recommend unshielded for 1-3 MHz & 1-6 MHz: models DPTU, DPT45U and DPT90U for improved response.
*** 3.2 mm shaft & 1.6 mm tip at coil end. 25.4 mm (1 in) long tip for straight probes. Drop leng

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

DPTTAP Detachable Tip
Pencil Probe Tapered Shielded

Applications / Standard Features

- Designed for general crack detection
- Pencil probes can detect indications down to approximately ½ the coils diameter

Probe Shaft Diameter	Probe Coil Outside Diameter	Connector to Tip Length	Frequencies Options	Connector Options
N/A	1.6 mm (0.062 in)	101.6 mm (4 in)	50-500 kHz* 0.5-1 MHz 1-3 MHz (0.125 in shaft only)**	Microdot Triax

* Most common – Custom options are available for all items
** 1-3 MHz uses unshielded models DPTU, DPT45U and DPT90U to provide a better response

Pencil Probe Tip Protection

Note: Eddyfi Technologies does not sell the below items for protecting the tips. This is for your reference. Protect the materials you are inspecting and the probe coils.

From 33B-1-2: NONDESTRUCTIVE INSPECTION GENERAL PROCEDURES AND PROCESS CONTROLS

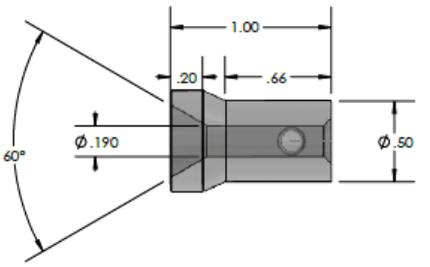
4.1.1.4: Teflon tape: It is required that teflon tape be applied to the contact surface of the probes to protect the probe tip from excessive wear and damage and to reduce probe noise. P/N 3M 5480 or equivalent, maximum thickness 0.005".
or
TapeCase ¾-5-423-x UHMW Tape Roll 3/4 in. (W) x 15 ft. (L) - Abrasion Resistant High Tack Acrylic Adhesive.

Part Number	Thickness
¾-5-423-3	0.127 mm (0.005 in)
¾-5-423-5	0.178 mm (0.007 in)
¾-5-423-10	0.254 mm (0.010 in)

Pencil Probe Plexiglass Collar

Plexiglass collar for straight pencil probes

Part Number	Thickness
AF-5444-C/072	1.83 mm (0.072 in)
AF-5444-C/093	2.36 mm (0.093 in)
AF-5444-C/125	3.18 mm (0.125 in)
AF-5444-C	4.83 mm (0.190 in)



Blade Probes

Applications / Standard Features

- Designed for surface detection in narrow slots or gaps. Both sides of the probe will detect defects.
- **Shielded
- Drop is 12.7 mm (0.5 in) for any angled probes. Other drops upon request.

BLD Detachable Tip Pencil Probe Straight Shielded
BLD45 Detachable Tip Blade Probe 45 degree Shielded
BLD60 Detachable Tip Blade Probe 60 degree Shielded
BLD90 Detachable Tip Blade Probe 90 degree Shielded

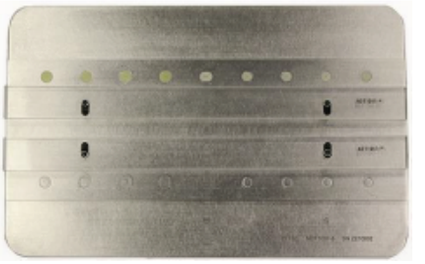
Shaft Thickness (Width of the shaft)	Connector to Tip Lengths	Frequencies Options	Connector Options
0.8 mm (0.030 in) 1.1 mm (0.045 in) 1.5 mm (0.060 in) 2.3 mm (0.090 in)	152.4 mm (6 in)	50-500 kHz* 1-3 MHz (0.125 in coil only)**	Microdot Triax

* Most common – Custom options are available for all items
** 1-2 MHz uses unshielded models BLDU, BLD45U, BLD60U, BLD90U to provide a better response
Note: Microdot connectors are not used because Triax provides a better response

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

Slide Probes

SLD Detachable Tip Sliding Probe with Reflection (Reflection / Driver Pick-up Coils)



Applications / Standard Features

- Inspecting rows of flush fasteners
- The MIZ-21C and adapter cable can run slide probes as differential coils
- For detection of near side to far side indications near fasteners. For faster inspections ask about Surf-X probes

Probe Coil Outside Diameter	Frequencies Options	Connector Options
Customer recommended coil diameter or coverage width	Provide Frequency	Triax
Custom options are available for all items		

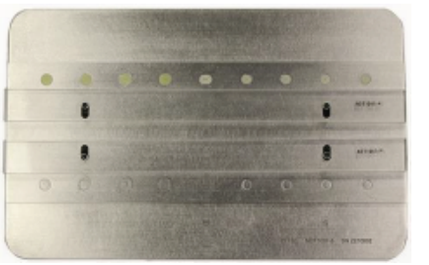
Coil diameter should be sized to find flaws of interest.

Part Number	Description	Probe Coil Outside Diameter	Coil Operation	Frequencies	Connector Options
SLD-001	ZHHD-SLD-E00.500-0049-00Z0000	12.7 mm (0.5 in)	Reflection (Driver Pick-up)	1-100 kHz	Triax

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

Adjustable Slide Probes

SLDADJ Detachable Tip Adjustable Sliding Probe with Reflection (Reflection / Driver Pick-up Coils)



Applications / Standard Features

- For detection of near side to far side indications over protruding fasteners
- Inspecting rows of protruding fasteners
- Includes 2.54 mm (0.10 in) and 1.27 (0.05 in) spacers

Probe Coil Outside Diameter	Frequencies Options	Connector Options
Customer recommended coil diameter or coverage width	Provide Frequency	Triax
Custom options are available for all items		

Coil diameter should be sized to find flaws of interest.

Part Number	Description	Probe Coil Outside Diameter	Coil Operation	Frequencies	Connector Options
SLDADJ-001	ZHHD-SLDADJ-E00.500-#-00D0000	12.7 mm (0.5 in)	Reflection (Driver Pick-up)	1-20 kHz	Triax

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

Ring Probes

RNG Detachable Tip Ring Probe with Reflection (Driver Pick-up Coils)
RNGB Detachable Tip Ring Probe with Reflection (Bridge / Differential)

Applications / Standard Features

- For examination the body surface of protruding fasteners
- Inspecting protruding fasteners for surface and subsurface cracks in the material or multilayer structure

Probe Coil Inside Diameter	Frequencies Options	Connector Options
Customer recommended coil inside diameter or coverage width	Provide Frequency	Triax
Custom options are available for all items		

Part Number	Description	Probe Coil Outside Diameter	Coil Operation	Frequencies	Connector Options
RNG-001	ZHHD-RNG-E00.670-047-00Z0000	17.0 mm (0.670 in) / 27.9 mm (1.100 in)	Reflection (Driver Pick-up)	100Hz – 100 kHz	Triax
RNGB-001	ZHHD-RNGB-E00.330-#-00Z0000	8.5 mm (0.330 in)	Bridge / Differential	100Hz - 1kHz	Triax

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

Spot Probes

SPT Detachable Tip Spot Probe with Reflection (Driver Pick-up Coils)
SPTU Detachable Tip Spot Probe with Reflection (Driver Pick-up Coils) Unshielded

Applications / Standard Features

- Inspecting deep and far side flaws
- Spot probes typically have ferrite cores

Probe Coil Outside Diameter	Frequencies Options	Connector Options
Customer recommended coil diameter or coverage width	Provide Frequency	Triax
Custom options are available for all items		

Part Number	Description	Probe Coil Outside Diameter	Coil Operation	Frequencies	Connector Options
SPT-001	ZHHD-SPT-E00.400-049-00Z0000	10.2 mm (0.400 in)	Reflection (Driver Pick-up)	0.5-60 kHz	Triax
SPTU-001	ZHHD-SPTU-E00.250-#-00Z0000	6.4 mm (0.25 in)	Reflection (Driver Pick-up)	100-500 kHz	Triax

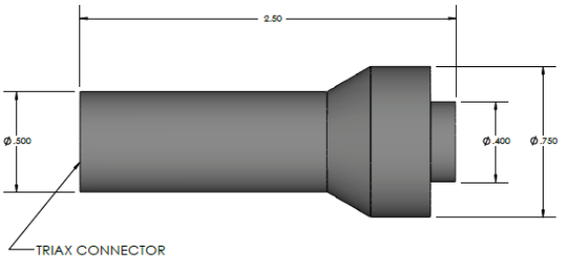
Minimum outside coil diameter is 6.35 mm (0.250 in)

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

SPTSL Detachable Tip Spot Probe with Reflection (Driver Pick-up Coils) Spring loaded

Applications / Standard Features

- Inspecting deep and far side flaws
- Spot probes typically have ferrite cores
- Reflections coil is used for hardness testing



Probe Coil Inside Diameter	Frequencies Options	Connector Options
Customer recommended coil inside diameter or coverage width	Provide Frequency	Triax
Custom options are available for all items		

Part Number	Description	Probe Coil Outside Diameter	Coil Operation	Frequencies	Connector Options
SPTSL-001	ZHHD-SPTSL-E00.400-025-00Z0000	Body Varies	Reflection (Driver Pick-up)	5-50 kHz	Triax
Minimum outside coil diameter is 6.35 mm (0.250 in)					

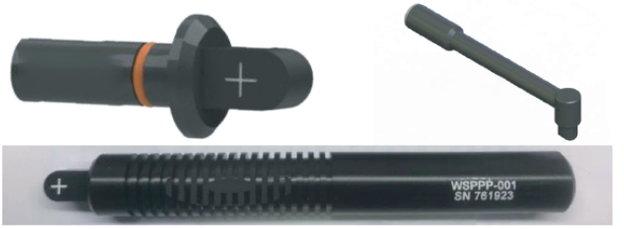
Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

Weld Probes

WSPPP Weld Scan Probe with Differential Plus Point Coil

Applications / Standard Features

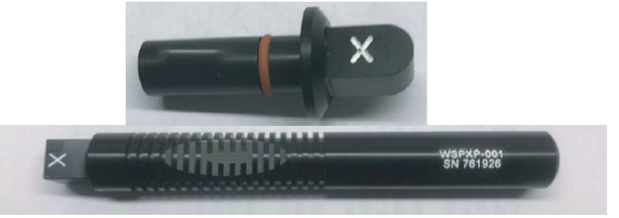
- Inspection of Raised Weld Beads
- Operating in Differential Mode



WSPXP Weld Scan Probe with Driver Pickup Cross Point Coil

Applications / Standard Features

- Inspection of Flush Ground Welds (better for flat surfaces)
- Operating in Driver-Pickup Mode



Eddyfi Part Number	Coil Diameter Options	Probe Tip Diameter Options	Handle Length	Frequencies	Connector Options
ZHHD-WSPPP-E00.312-PP10B-02Z0000	6.22 mm (0.245")	7.92 mm (0.312")	127 mm (5.0 in)	30-300 kHz +point	Triax
ZHHD-WSPPP-E00.312-PP10B-0#F0000			40.5 mm (1.62 in)	30-300 kHz +point	3 Pin
ZHHD-WSPXP-E00.312-PP10B-02Z0000			127 mm (5.0 in)	30-300 kHz Xpoint	Triax
ZHHD-WSPXP-E00.312-PP10B-0#F0000			40.5 mm (1.62 in)	30-300 kHz Xpoint	3 Pin

Custom options are available for all items

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

SPT or T/D Conductivity Probe

Applications / Standard Features

- Frequency Selection: The thickness of the test material should be thicker than 3 standard depths of penetration for the selected frequency. For thinner materials select the higher frequency probe. (Selected frequency should allow for at least 3 standard depths of penetration)
- Determining conductivity of metals and thickness of coatings
- Probe receive coil is 8.4 mm (0.329 in). The probe body at the coil is 12.7 mm (0.500 in).
- MIZ-21C is set up to run conductivity with these probe coils.

Eddyfi Part Numbers	Description	Cable Length	Adapter to MIZ-21C	Frequency	Connector
ZHHP-T/D-375-SP-6-4PA	ZHHP-T/D-375-SP-6-4PA	1.8 m (6 ft)	111A816-00	60 kHz	4 pin Amphenol
ZHHP-T/D-375-SP-6-4PF	ZHHP-T/D-375-SP-6-4PF	1.8 m (6 ft)	111A807-00	60 kHz	4 pin Fischer
SPT-015	ZHHD-SPT-E00.329-#-00Z0000	None	111A805-00	60 +/- 10 kHz	Triax
SPT-017	ZHHD-SPT-E00.329-#-00Z0000	None	111A805-00	500 +/- 20 kHz	Triax

Supporting Instruments
MIZ-21C (all versions)
Cable adapters: Match connector to applicable adapter

Probes for Rotating Scanners

RTP Rotating Probe for Scanners, Reflection D coils (Driver Pick-up) Y-Type
RTPSS Rotating Probe Stainless Steel

Applications / Standard Features

- Inspecting flaws on the ID of a fastener hole
- Reflection (Driver Pick-up D coils)
- 50 – 500 kHz range also available

Hole Size	Frequencies Options	Connector Options
Customer recommended hole diameter range	Provide Frequency Range	4 Pin Fischer (Zetec / GE Scanners) 4 Pin Step LEMO (Most Olympus Scanners)
Custom options are available for all items		

4 Pin Fischer PN	Hole Diameter Range	Working Length	Frequency Range
RTP-040	2.36 – 3.18 mm (0.093 – 0.125 in)	28 mm (1.10 in)	100-2000 kHz
RTP-013	3.18 – 3.96 mm (0.125 – 0.156 in)	44 mm (1.75 in)	100-2000 kHz
RTP-014	3.96 – 4.75 mm (0.156 – 0.187 in)	44 mm (1.75 in)	100-2000 kHz
RTP-001	4.75 – 5.54 mm (0.187 – 0.218 in)	44 mm (1.75 in)	100-2000 kHz
RTP-003	5.54 – 6.35 mm (0.218 – 0.250 in)	51 mm (2.0 in)	100-2000 kHz
RTP-004	6.35 – 7.14 mm (0.250 – 0.281 in)	51 mm (2.0 in)	100-2000 kHz
RTP-005	7.14 – 7.92 mm (0.281 – 0.312 in)	51 mm (2.0 in)	100-2000 kHz
RTP-006	7.92 – 9.53 mm (0.312 – 0.375 in)	51 mm (2.0 in)	100-2000 kHz
RTP-002	9.53 – 11.10 mm (0.375 – 0.437 in)	51 mm (2.0 in)	100-2000 kHz
RTP-007	11.10 – 12.70 mm (0.437 – 0.500 in)	51 mm (2.0 in)	100-2000 kHz
RTP-008	12.70 – 14.27 mm (0.500 – 0.562 in)	51 mm (2.0 in)	100-2000 kHz
RTP-009	14.27 – 15.88 mm (0.562 – 0.625 in)	51 mm (2.0 in)	100-2000 kHz
RTP-010	15.88 – 17.45 mm (0.625 – 0.687 in)	51 mm (2.0 in)	100-2000 kHz
RTP-011	17.45 – 19.05 mm (0.687 – 0.750 in)	51 mm (2.0 in)	100-2000 kHz
RTP-012	19.05 – 20.62 mm (0.750 – 0.812 in)	51 mm (2.0 in)	100-2000 kHz

Supporting Instruments
MIZ-21C-DF and MIZ-21C-Array
Rotating Scanners: Zetec, GE or Olympus
Scanner Cable Adapters: Match scanner connector to applicable adapter

ARTP Adjustable Rotating Probe, Reflection D coils (Driver Pick-up) Y-Type
ARTPSS Adjustable Rotating Probe Stainless Steel

Applications / Standard Features

- Inspecting flaws on the ID of a fastener hole. Adjustable probe tips fine tune the probe tip to better fit hole diameters than non-adjustable probe tips.
- Reflection (Driver Pick-up D coils) Y-Type
- 50 – 500 kHz range also available

Hole Size	Frequencies Options	Connector Options
Customer recommended hole diameter range	Provide Frequency Range	4 Pin Fischer (Zetec / GE Scanners) 4 Pin Step LEMO (Most Olympus Scanners)
Custom options are available for all items		

4 Pin Fischer PN	4 Pin Step LEMO PN	Hole Diameter Range	Working Length	Frequency Range
AFRTP-001	4.75 – 6.35 mm (0.187 – 0.250 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-002	6.35 – 7.92 mm (0.250 – 0.312 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-003	7.92 – 9.53 mm (0.312 – 0.375 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-004	9.53 – 11.10 mm (0.375 – 0.437 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-005	11.10 – 12.70 mm (0.437 – 0.500 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-006	12.70 – 15.88 mm (0.500 – 0.625 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-007	15.88 – 17.45 mm (0.625 – 0.687 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-008	17.45 – 19.05 mm (0.687 – 0.750 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-009	19.05 – 22.23 mm (0.750 – 0.875 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz

Supporting Instruments
MIZ-21C-DF and MIZ-21C-Array
Rotating Scanners: Zetec, GE or Olympus
Scanner Cable Adapters: Match scanner connector to applicable adapter.

Rotating Probe Kits for RTP, ARTP and ARTPSS Probes

Kit Includes

- Carrying case
- 21 RTP (rotating bolt hole) or 21 ARTP (adjustable rotating bolt hole) probes for the ZM-5 rotating scanner
- All 21 probes have 4 pin Fischer connectors and will work with other scanners using this connector
- Probe sizes run in 0.794 mm (1/32 in) increments from 3.175 mm (1/8 in) to 19.05 mm (3/4 in). Sizes match holes on the NRK standards.

Part Number	Description	Sizes	Working Length	Connector type	Frequency Range
RTP-KIT01	21 RTP (rotating bolt hole probes)	3.175mm (1/8 in) to 19.05 mm (3/4 in)	44 mm (1.75 in) to 51 mm (2.00 in)	4 Pin Fischer	100-2000 kHz
ARTP-KIT01	21 ARTP (Adjustable rotating bolt hole probes)				
ARTPSS-KIT01	21 ARTPSS (Stainless Steel)				
RTP-KIT02	Same as RTP-KIT-01, but every probe has a 101 mm (3.0 in) working length				

Supporting Instruments
MIZ-21C-DF and MIZ-21C-Array
Rotating Scanners: Zetec, GE or Olympus
Scanner Cable Adapters: Match scanner connector to applicable adapter.

ARTPX Adjustable Rotating Probe for Mini Scanners, Reflection D coils (Driver Pick-up) X-Type

Applications / Standard Features

- Inspecting flaws on the ID of a fastener hole. Adjustable probe tips fine tune the probe tip to better fit hole diameters than non-adjustable probe tips.
- Reflection (Driver Pick-up D coils) X-Type Adjustable version of the Y-Type probe. Better accuracy than other adjustable probes.

Hole Size	Frequencies Options	Connector Options
Customer recommended hole diameter range	Provide Frequency Range	4 Pin Fischer (Zetec / GE Scanners) 4 Pin Step LEMO (Most Olympus Scanners)
Custom options are available for all items		

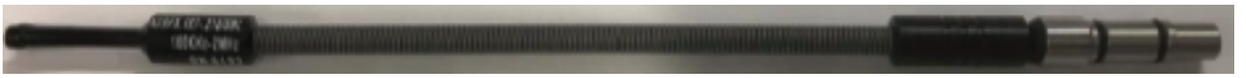
4 Pin Fischer PN	4 Pin Step LEMO PN	Hole Diameter Range	Working Length	Frequency Range
ARTPX-001	ARTPX-018	4.75 – 5.54 mm (0.187 – 0.218 in)	44 mm (1.75 in)	100-2000 kHz
ARTPX-004	ARTPX-019	5.54 – 6.35 mm (0.218 – 0.250 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-005	ARTPX-020	6.35 – 7.14 mm (0.250 – 0.281 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-006	ARTPX-021	7.14 – 7.92 mm (0.281 – 0.312 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-007	ARTPX-022	7.92 – 9.53 mm (0.312 – 0.375 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-008	ARTPX-023	9.53 – 11.10 mm (0.375 – 0.437 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-009	ARTPX-024	11.10 – 12.70 mm (0.437 – 0.500 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-010	ARTPX-025	12.70 – 14.27 mm (0.500 – 0.562 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-011	ARTPX-026	14.27 – 15.88 mm (0.562 – 0.625 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-012	ARTPX-027	15.88 – 17.45 mm (0.625 – 0.687 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-013	ARTPX-028	17.45 – 19.05 mm (0.687 – 0.750 in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-014	ARTPX-029	19.05 – 22.23 mm (0.750 – 0.875in)	51 mm (2.0 in)	100-2000 kHz
ARTPX-015	ARTPX-030	22.23 – 25.40 mm (0.875 – 1.000 in)	51 mm (2.0 in)	100-2000 kHz

Supporting Instruments
MIZ-21C-DF and MIZ-21C-Array
Rotating Scanners: Zetec, GE or Olympus
Scanner Cable Adapters: Match scanner connector to applicable adapter.

AFRTP Adjustable Flexible Rotating Probe for Mini Scanners, Reflection D coils (Driver Pick-up)

Applications / Standard Features

- Inspecting flaws on the ID of a fastener hole where a slight bend occurs for entering the hole
- Reflection (Driver Pick-up D coils)



Hole Size	Frequencies Options	Connector Options
Customer recommended hole diameter range	Provide Frequency Range	4 Pin Fischer (Zetec / GE Scanners) 4 Pin Step LEMO (Most Olympus Scanners)
Custom options are available for all items		

4 Pin Fischer PN	4 Pin Step LEMO PN	Hole Diameter Range	Working Length	Frequency Range
AFRTP-001	4.75 – 6.35 mm (0.187 – 0.250 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-002	6.35 – 7.92 mm (0.250 – 0.312 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-003	7.92 – 9.53 mm (0.312 – 0.375 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-004	9.53 – 11.10 mm (0.375 – 0.437 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-005	11.10 – 12.70 mm (0.437 – 0.500 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-006	12.70 – 15.88 mm (0.500 – 0.625 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-007	15.88 – 17.45 mm (0.625 – 0.687 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-008	17.45 – 19.05 mm (0.687 – 0.750 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz
AFRTP-009	19.05 – 22.23 mm (0.750 – 0.875 in)	152 mm (6.0 in)	4 Pin Fischer	100-2000 kHz

Supporting Instruments
MIZ-21C-DF and MIZ-21C-Array
Rotating Scanners: Zetec, GE or Olympus
Scanner Cable Adapters: Match scanner connector to applicable adapter.

CRTP Counter Sink Rotating Probe for Mini Scanners, Reflection D coils (Driver Pick-up)

Applications / Standard Features

- Inspecting counter sinks
- Standard probes are for 100 degree counter sink.
- Reflection (Driver Pick-up D coils)

Hole Size	Frequencies Options	Connector Options
Customer recommended hole diameter range	Provide Frequency Range	4 Pin Fischer (Zetec / GE Scanners) 4 Pin Step LEMO (Most Olympus Scanners)
Custom options are available for all items		

Part Number	Hole Diameter	Countersink Angle	Connector type	Frequency Range
CRTP-003	4 mm (0.156 in)	100°	4 Pin Fischer	100-2000 kHz
CRTP-001	5 mm (0.187 in)	100°	4 Pin Fischer	100-2000 kHz
CRTP-002	6 mm (0.250 in)	100°	4 Pin Fischer	100-2000 kHz

Supporting Instruments
MIZ-21C-DF and MIZ-21C-Array
Rotating Scanners: Zetec, GE or Olympus
Scanner Cable Adapters: Match scanner connector to applicable adapter.

MBHP Manual Bolt Hole Probe, Absolute Coil

Applications / Standard Features

- Inspecting flaws on the ID of a fastener hole
- Absolute coils
- 3.18 mm (0.125 in) is the smallest size available

Frequecy Selection

- 50kHz-500kHz for aluminum
- 200kHz-1MHz for steel
- 1MHz-3MHz for titanium

Part Number	Hole Diameter Range	Working Length	Connector type	Frequency Range
MBHP-010	2.36 – 3.18 mm (0.093 – 0.125 in)	38 mm (1.5 in)	Triax	50-500 kHz
MBHP-007	3.18 – 3.96 mm (0.125 – 0.156 in)	38 mm (1.5 in)	Triax	50-500 kHz
MBHP-004	3.18 – 3.96 mm (0.125 – 0.156 in)	25.4 mm (1.0 in)	Triax	200-1000 kHz
MBHP-008	3.96 – 4.75 mm (0.156 – 0.187 in)	38 mm (1.5 in)	Triax	50-500 kHz
MBHP-005	3.96 – 4.75 mm (0.156 – 0.187 in)	25.4 mm (1.0 in)	Triax	200-1000 kHz
MBHP-009	4.75 – 6.35 mm (0.187 – 0.250 in)	38 mm (1.5 in)	Triax	50-500 kHz
MBHP-006	4.75 – 6.35 mm (0.187 – 0.250 in)	25.4 mm (1.0 in)	Triax	200-1000 kHz
MBHP-001	6.35 – 7.14 mm (0.250 – 0.281 in)	38 mm (1.5 in)	Triax	50-500 kHz
MBHP-002	7.14 – 7.92 mm (0.281 – 0.312 in)	38 mm (1.5 in)	Triax	50-500 kHz
MBHP-003	7.92 – 9.53 mm (0.312 – 0.375 in)	51 mm (2.0 in)	Triax	50-500 kHz
MBHP-011	9.53 – 11.10 mm (0.375 – 0.437 in)	51 mm (2.0 in)	Triax	50-500 kHz
MBHP-012	11.10 – 12.70 mm (0.437 – 0.500 in)	51 mm (2.0 in)	Triax	50-500 kHz
MBHP-013	12.70 – 14.27 mm (0.500 – 0.562 in)	51 mm (2.0 in)	Triax	50-500 kHz
MBHP-014	14.27 – 15.88 mm (0.562 – 0.625 in)	51 mm (2.0 in)	Triax	50-500 kHz
MBHP-015	15.88 – 17.45 mm (0.625 – 0.687 in)	51 mm (2.0 in)	Triax	50-500 kHz
MBHP-016	17.45 – 19.05 mm (0.687 – 0.750 in)	51 mm (2.0 in)	Triax	50-500 kHz
MBHP-017	19.05 – 20.62 mm (0.750 – 0.812 in)	51 mm (2.0 in)	Triax	50-500 kHz

Supporting Instruments
MIZ-21C
Cable adapters: Match connector to applicable adapter.

MCSP Manual Counter Sink Probe, Absolute Coils

Applications / Standard Features

- Inspecting counter sinks
- Standard probes are for 100 degree counter sink.

Frequecy Selection

- 50kHz-500kHz for aluminum
- 500kHz-1MHz for steel
- 1MHz-3MHz for titanium

Part Number	Hole Diameter	Countersink Angle	Connector type	Frequency Range
MCSP-003	2 mm (0.093 in)	100°	Triax	50-500 kHz
MCSP-004	3 mm (0.125 in)	100°	Triax	50-500 kHz
MCSP-005	4 mm (0.156 in)	100°	Triax	50-500 kHz
MCSP-006	5 mm (0.187 in)	100°	Triax	50-500 kHz
MCSP-001	6 mm (0.250 in)	100°	Triax	50-500 kHz
MCSP-002	8 mm (0.312 in)	100°	Triax	50-500 kHz
MCSP-007	10 mm (0.375 in)	100°	Triax	50-500 kHz
MCSP-008	11 mm (0.437 in)	100°	Triax	50-500 kHz
MCSP-009	13 mm (0.500 in)	100°	Triax	50-500 kHz
MCSP-010	14 mm (0.562 in)	100°	Triax	50-500 kHz
MCSP-011	16 mm (0.625 in)	100°	Triax	50-500 kHz
MCSP-012	17 mm (0.687 in)	100°	Triax	50-500 kHz
MCSP-013	19 mm (0.750 in)	100°	Triax	50-500 kHz

Supporting Instruments
MIZ-21C
Cable adapters: Match connector to applicable adapter.

Shims

Part Number: SHIM-001

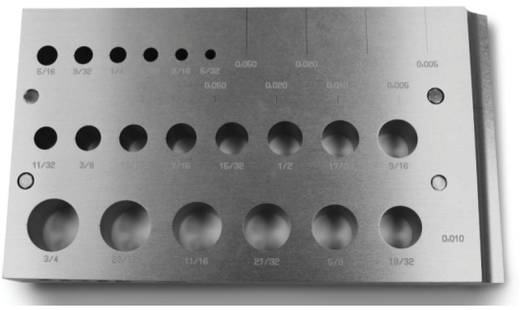
- Set of 13 shims
- 127 mm (5 in) long by 12.7 mm (0.5 in) wide
- Contains 1 of each thickness: 0.001", 0.0015",
- 0.002", 0.003", 0.004", 0.005", 0.0075", 0.010",
- 0.0125", 0.015", 0.020", 0.025", and 0.030"
- In millimeters: 0.025, 0.038, 0.051, 0.076, 0.102,
- 0.127, 0.191, 0.254, 0.318, 0.381, 0.508, 0.635,
- and 0.762
- Made of polyester and vinyl
- Color indicates thickness
- Noncorrosive, nonconductive, nonsparking, and nonmarring

Calibration Standards

Navy Reference Kits

Navy Eddy Current Reference Standard Kit. Contains 20 fasteners holes (.156-.750) with a total of 71 EDM notches. Includes Test Report and Certificate of Conformance

Price is material dependent



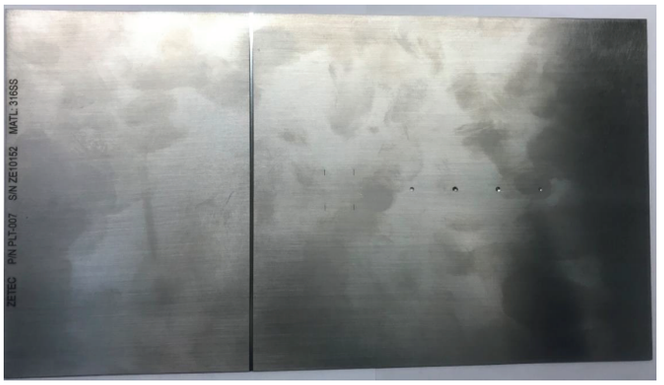
Part Number	Material
NRK-001	400 STAINLESS STEEL
NRK-002	17-4PH STAINLESS STEEL
NRK-003	17-7PH STAINLESS STEEL
NRK-004	304 STAINLESS STEEL
NRK-005	6526 Nickel Cobalt Steel
NRK-006*	7075-T6 Aluminum for top and middle layer. 7075-T7 for bottom layer (same as NRK-3A)
NRK-007	6AL-4V Titanium (same as NRK-3T)
NRK-008	718 Inconel
NRK-009	AZ 31 Magnesium
NRK-010	4340 Cres Steel (same as NRK-3S)
NRK-011	2024-T3 Aluminum

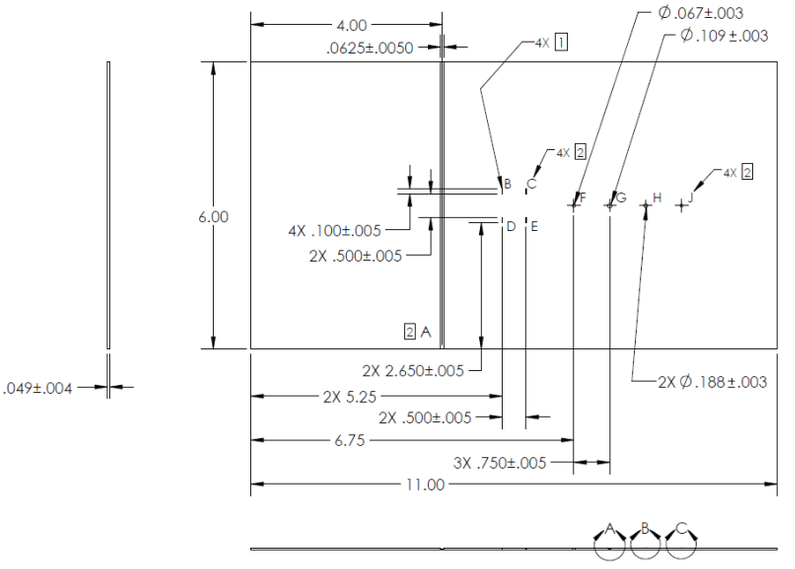
*Most common

Surf-X Reference Plate

- Plate Size: 11.00" long x 6.00" wide x approximately 0.050" deep
- Ⓐ Calibration groove (6.00" +/- 0.050" long x 0.0625" +/- .0050" wide x 40% deep)
- 4 EDM notches at varying depths Ⓑ100%, Ⓒ60%, Ⓓ20%, Ⓔ10% (all 0.100" +/- 0.005" long and 0.005" +/- 0.002" wide)
- Ⓕ1 Through Wall Hole 100% x 0.067" diameter,
- 3 Round Bottom Holes at varying depths and diameter Ⓖ60% x 0.109", Ⓗ20% x 0.188", Ⓙ10% x 0.188"
- % depths have a tolerance of +/-0.003"
- Includes as built indications report and serialized plate

Part Number	Material	Plate Thickness
PLT-007	Stainless Steel 316	1.22 mm (0.048 in)
PLT-009	ALUMINUM 7075-T6	1.27 mm (0.050 in)
PLT-012	Customer Provided 11" x 6" Plate	Customer Provided
PLT-017	ALUMINUM 2024-T3	1.27 mm (0.050 in)
PLT-023	6AL-4V Titanium	1.27 mm (0.050 in)



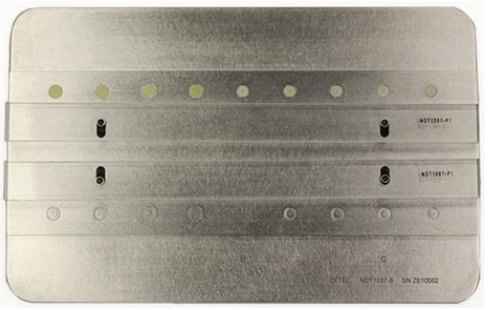


LOCATION	A	B	C	D	E	F	G	H	J
DEPTH OF FLAW	↧ 40%	↧ 100%	↧ 60%	↧ 20%	↧ 10%	↧ 100%	↧ 60%	↧ 20%	↧ 10%
LENGTH/DIA. OF FLAW	.0625 W.	.100 Lg.	.100 Lg.	.100 Lg.	.100 Lg.	Ø.067	Ø.109	Ø.188	Ø .188
DESCRIPTION	GROOVE	EDM	EDM	EDM	EDM	TWH	RBH	RBH	RBH

Boeing Reference Standard (ZNDT1087-X)

"-X" are for varying plate thicknesses.

- BOEING REFERENCE STANDARD 737 PT 6 53-30-00 & 777 PT6 53-30-09
- FASTENER (NAS1097D6-6DM NAS1097D5-6D, ALL ALDOIZED) (BACR15GF6D7, BACRGF5D6, ALL ALODINED).
- Includes Test Report and Certificate of Conformance

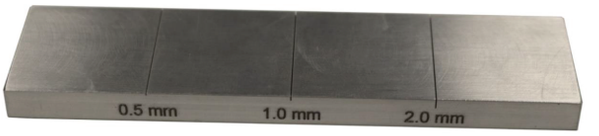


Part Number	Top Plate Thickness	Bottom Plate Thickness	EDM Notch Length
ZNDT1087-1	1.27 mm (0.050 in)	1.02 mm (0.040 in)	5.08 mm (0.200 in)
ZNDT1087-2	1.80 mm (0.071 in)	1.02 mm (0.040 in)	5.08 mm (0.200 in)
ZNDT1087-3	2.03 mm (0.080 in)	1.02 mm (0.040 in)	4.57 mm (0.180 in)
ZNDT1087-4	2.29 mm (0.090 in)	1.02 mm (0.040 in)	5.08 mm (0.200 in)
ZNDT1087-5	2.54 mm (0.100 in)	1.27 mm (0.050 in)	5.08 mm (0.200 in)
ZNDT1087-6	1.80 mm (0.071 in)	1.60 mm (0.063 in)	6.35 mm (0.250 in)
ZNDT1087-7	2.29 mm (0.090 in)	2.03 mm (0.080 in)	6.35 mm (0.250 in)
ZNDT1087-8	2.54 mm (0.100 in)	2.29 mm (0.090 in)	6.35 mm (0.250 in)
ZNDT1087-9	0.91 mm (0.036 in)	0.91 mm (0.036 in)	

Crack Flaw Standards

Block Size: 4.0"(101.6mm)L x 1.0"(25.4mm)D x 0.25"(6.35mm)H.
Includes 3 EDM Flaws of the following sizes:
1. 0.02" (0.5mm)D x 0.01" (0.25mm)W x 1.0" (25mm)L
2. 0.04" (1.0mm)D x 0.01" (0.25mm)W x 1.0" (25mm)L
3. 0.08" (2.0mm)D x 0.01" (0.25mm)W x 1.0" (25mm)L

Includes Test Report and Certificate of Conformance.
Price is material dependent



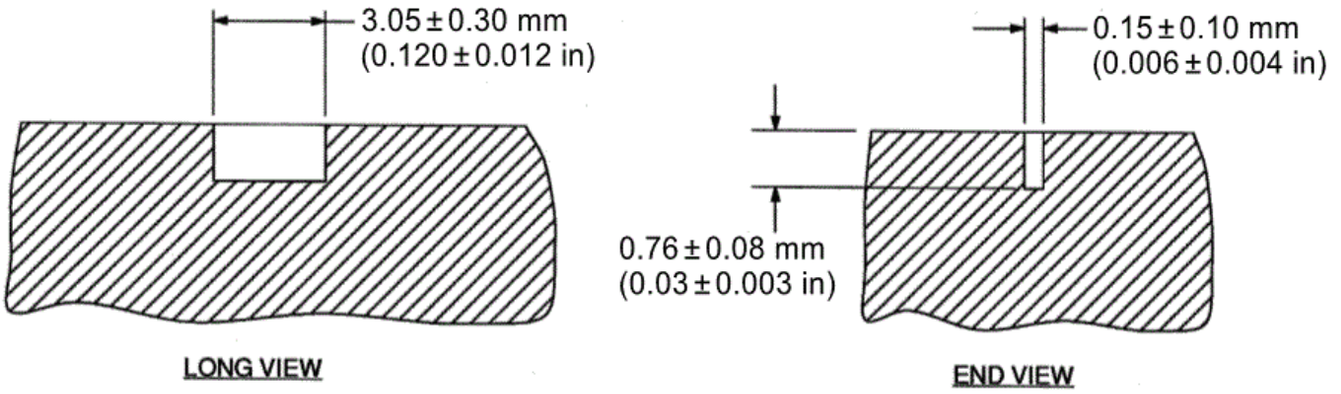
Part Number	Description
ZNDT-3025CS	Eddy Current 3 Crack Surface Standard 4340 Carbon Steel
ZNDT-3025INC	Eddy Current 3 Crack Surface Standard 718 Inconel
ZNDT-3025AL	Eddy Current 3 Crack Surface Standard 7075-T6 Aluminum
ZNDT-3025SS	Eddy Current 3 Crack Surface Standard 304 Stainless Steel
ZNDT-3025TI	Eddy Current 3 Crack Surface Standard 6Al 4V Titanium

Block Size: 4.0"(101.6mm)L x 1.0"(25.4mm)D x 0.25"(6.35mm)H.
Includes 3 EDM Flaws of the following sizes:
1. 0.01" (0.25mm)D x 0.01" (0.25mm)W x 1.0" (25mm)L
2. 0.02" (0.5mm)D x 0.01" (0.25mm)W x 1.0" (25mm)L
3. 0.04" (1.0mm)D x 0.01" (0.25mm)W x 1.0" (25mm)L

Includes Test Report and Certificate of Conformance.
Price is material dependent

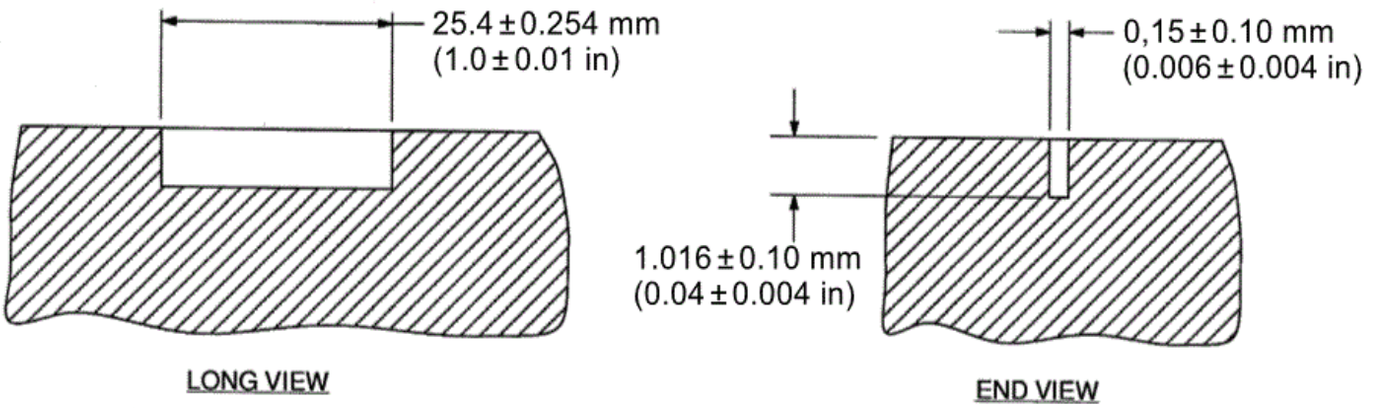
Part Number	Description
ZNDT-3311CS	Eddy Current 3 Crack Surface Standard 4340 Carbon Steel
ZNDT-3311INC	Eddy Current 3 Crack Surface Standard 718 Inconel
ZNDT-3311AL	Eddy Current 3 Crack Surface Standard 7075-T6 Aluminum
ZNDT-3311SS	Eddy Current 3 Crack Surface Standard 304 Stainless Steel
ZNDT-3311TI	Eddy Current 3 Crack Surface Standard 6Al 4V Titanium
ZNDT-3311MAG	Eddy Current 3 Crack Surface Standard Magnesium
ZNDT-2030/7075-T6*	Eddy Current 3 Crack Surface Standard Aluminum 7075-T6
ZNDT-2030/MAG*, **	Eddy Current 3 Crack Surface Standard Magnesium
ZNDT-2030/2014-T6*, **	Eddy Current 3 Crack Surface Standard Aluminum 2014-T6
ZNDT-2030/2014-T651*, **	Eddy Current 3 Crack Surface Standard Aluminum 2014-T651
ZNDT-2030/TI	Eddy Current 3 Crack Surface Standard 6AL-4v TITANIUM

* Indication 1 is 0.20 mm (0.008 in) deep, not 0.25 mm (0.01 in)
** All notch widths are 0.18 mm (0.007 in), not 0.25 mm (0.02 in)



MAIN WHEEL
(FORGED ALUMINIUM ALLOY)

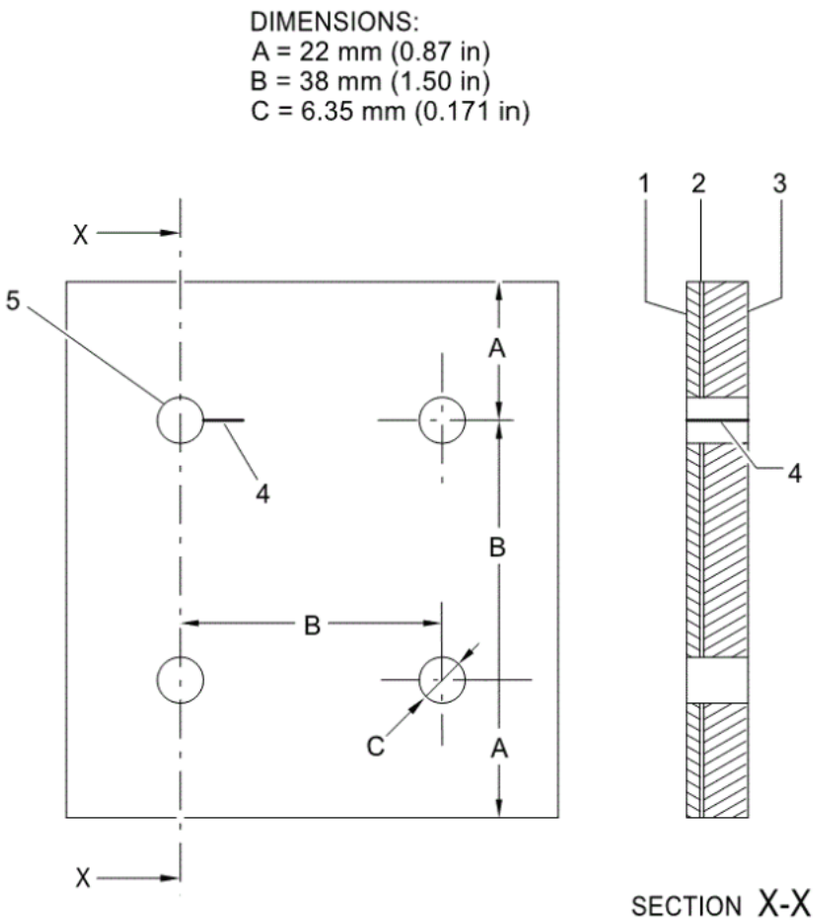
Part Number	Description
ZNDT-2008F	AIRCRAFT BRAKING SYSTEMS REFERENCE STANDARD PT 3 32-42-05, PROCEEDURE 1, FIGURE 11, PAGE 15 ALUMINUM 2014-T6 CONDUCTIVITY RANGE 35-40 IACS.



NOSE WHEEL
(CAST ALUMINIUM ALLOY)

Part Number	Description
ZNDT-2008C	AIRCRAFT BRAKING SYSTEMS REFERENCE STANDARD PT 3 32-42-05, PAGES 1-7 FIGURE 2 and 3 CAST ALUMINUM

Main Landing Gear Backup Structures Calibration Block



1. AISI 301-1/4 HARD STEEL SHEET (AMS5517)
   1.02 mm (0.040 in) THICK
2. TEFLON TAPE
   0.1 mm (0.004 in) MINIMUM THICK
3. SERIE 7 ALUMINUM ALLOY PLATE
   3.5 mm (0.138 in) THICK
4. 5 mm (0.2 in) REFERENCE NOTCH
   MADE NOTCH BY ELECTRO-DISCHARGING MACHINING
5. ATTACH PARTS WITH FOUR HL21PB-6-6 PINS
   AND HL86PB-6 COLLARS (HI-LOK FASTENERS)

Part Number	Description
ZNDT-2008F	AIRCRAFT BRAKING SYSTEMS REFERENCE STANDARD PT 3 32-42-05, PROCEEDURE 1, FIGURE 11, PAGE 15 ALUMINUM 2014-T6 CONDUCTIVITY RANGE 35-40 IACS.
ZNDT-2008F	AIRCRAFT BRAKING SYSTEMS REFERENCE STANDARD PT 3 32-42-05, PAGES 1-7 FIGURE 2 and 3 CAST ALUMINUM

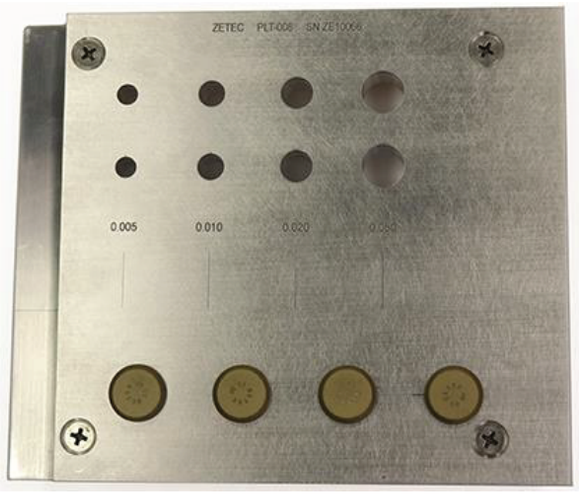
Conductivity Standards

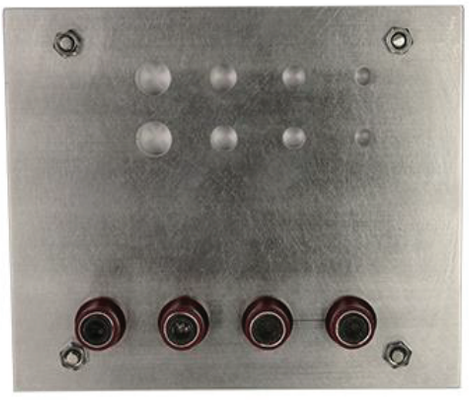
- Includes serialized coupon and letter of certification.
- Eddyfi Technologies does not provided a service to re-certify conductivity standards.
- IACS numbers are approximate, and coupons are stamped with the actual value. Tolerances from the actual values are measured at 20°C. Tolerances from the actual stamped values are 1% to 16% IACS +/- 2%. 16% to 62% +/-1% or +/-0.35 IACS, whichever is less. 62% to 104% IACS +/-1% with confidence level of 95%.

Part Number	Description
CONDSTD-01.0-TI	Conductivity Standard Titanium 1.0% IACS
CONDSTD-04.0-MA	Conductivity Standard Manganin 4.0% IACS
CONDSTD-06.8-CUNIAG	Conductivity Standard Alloy Copper, Nickle, Silver 6.8% IACS
CONDSTD-15.5-BRO	Conductivity Standard Bronze 15.5% IACS
CONDSTD-16.5-NG	Conductivity Standard Nordic Gold 16.5% IACS
CONDSTD-26.0-BRA	Conductivity Standard Brass 26.0% IACS
CONDSTD-30.0-AL	Conductivity Standard Aluminum 30.0% IACS
CONDSTD-39.0-AL	Conductivity Standard Aluminum 39.0% IACS
CONDSTD-43.0-ALMGSI	Conductivity Standard Alloy Aluminum, Magnesium, Silicon 43.0% IACS
CONDSTD-58.6-AL	Conductivity Standard 99% Pure Aluminum 58.6% IACS
CONDSTD-100-CU	Conductivity Standard Copper 100.0% IACS

Supporting Instruments
MIZ-21C
Recommended Probe: SPT-015 with 6-ft cable ZES-ADP-MIZ-21C_18-PIN_TO_TRIAX_6FT

MIZ-21C Demo Reference Plate





- 140 mm x 165 mm (5.5 in x 6.5 in) ALUMINUM 7075-T6 MIZ-21C Demo Reference Plate
- 9.5 mm (3/8 in) thick bottom plate, 4.8 mm (3/16 in) thick top plate
- 4 EDM surface notches (for pencil probe and spot probe): L = 16.5 mm (0.650 in), W = 0.13 mm (0.005 in), D = 0.13 mm (0.005 in), 0.25 mm (0.010 in), 0.51 mm (0.020 in), 1.27 mm (0.050 in)
- 8 through wall holes (for rotating bolt hole probes): 2x 6.35 mm (0.250 in), 2x 7.92 mm (0.312 in), 2x 9.53 mm (0.375 in), 2x 12.7 mm (0.500 in)
- 4 of the through wall holes on the top plate have 2x 0.76 mm (0.030 in) deep x 0.13 mm (0.005 in) wide EDM notches at a 45-degree angle on the near and far side of the top plate and 180 degrees apart.
- 4 of the through wall holes on the bottom plate have 1x 100% EDM through bottom plate only: 0.51 mm (0.020 in) D x 0.13 mm (0.005 in) W
- 4 through wall holes with 100-degree counter sinks (for counter sink rotating probe)
- Counter sink holes contain titanium fasteners (for ring probes)
- 1 of the counter sink holes has a 100% EDM notch L = 6.35 mm (0.250 in), W = 0.25 mm (0.010 in)
- 1x 100% EDM notch on the surface of the bottom plate only between first 2 TWHs on 3rd row: W = 0.25 mm (0.010 in) (for spot probe)
- 6.35 mm (0.250 in) radiused edge with circumferential EDM notch: 0.64 mm (0.025 in) D x 0.13 mm (0.005 in) W and length follows the entire contour, and axial EDM notch: 0.64 mm (0.025 in) D x 0.13 mm (0.005 in) W x 12.7 mm (0.500 in) L
- 6.35 mm (0.250 in) deep x 0.13 mm (0.005 in) wide EDM axial and circumferential notch (for +point weld probe).
- Price is material dependent

Part Number	Description
PLT-008	Zetec MIZ-21C Demo Kit Reference Plate ALUMINUM 7075-T6

2024-12

www.eddyfi.com info@eddyfi.com

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