Western Instruments

Established 1965

WA-Series – AC Inspection Coils

Western's new WA-Series of AC Coils are the most powerful Portable AC Coils in the inspection World. All 4 models are rated at over 4000 Amp Turns at 115VAC / 60Hz, and in excess of 5000 Amp Turns at 230VAC / 50Hz ("K" Models). The new WA-Series Coils have ID sizes that correspond to the model number; WA-8, WA-10, WA-12, and WA-14, with diameters of 203mm (8"), 254 (10"), 305mm (12"), and 356mm (14"). These 4 new models replaced our dated WAC-10.

The WA-Series are supplied with a Power Cord that is over 2.5m (8') long, and a 1.5m (5') Foot Switch Cord. Both of these cords are SOOW (XTREM H07RN-F), one of the highest standards for this type of power cord. With the foot switch being standard, WA-Series Coils are offered with an Energize Button for inspectors requiring extra mobility. The Energize Button is illustrated on the WA-8, in the foreground on the picture above, and in the highlight below

Both the Foot Switch and Energize Button activate Western's unique AC Module, which handles the full electrical load of the WA-Series Coils. The amperage capacity of these modules far exceeds the requirements of the Coil, which give the Foot Switch and Energize Button extended life. This is one of the reasons the AC Output from a WA-Series Coils is so high, we simply have a switching system that can handle the load. AC Coils are effective for finding surface breaking defects on work pieces with little wear, but where stress results in the highest cause of component failure. The AC field does not penetrate the surface of the workpiece, so its affect is totally surface following. As a result of the surface following characteristic one should not expect full demagnetization from an Alternating Current Field.

For to those who believe that an AC Coil will demagnetize a workpiece, doesn't understand magnetic fields. An AC Coil will only affect the surface of a workpiece,

DISTRIBUÉ PAR / DISTRIBUTED BY:

QUALITY NDE LTD

QUEBEC
164, St-Jean-Baptiste
Mercier, QC J6R 2C2
450-691-9090
info@qnde.ca

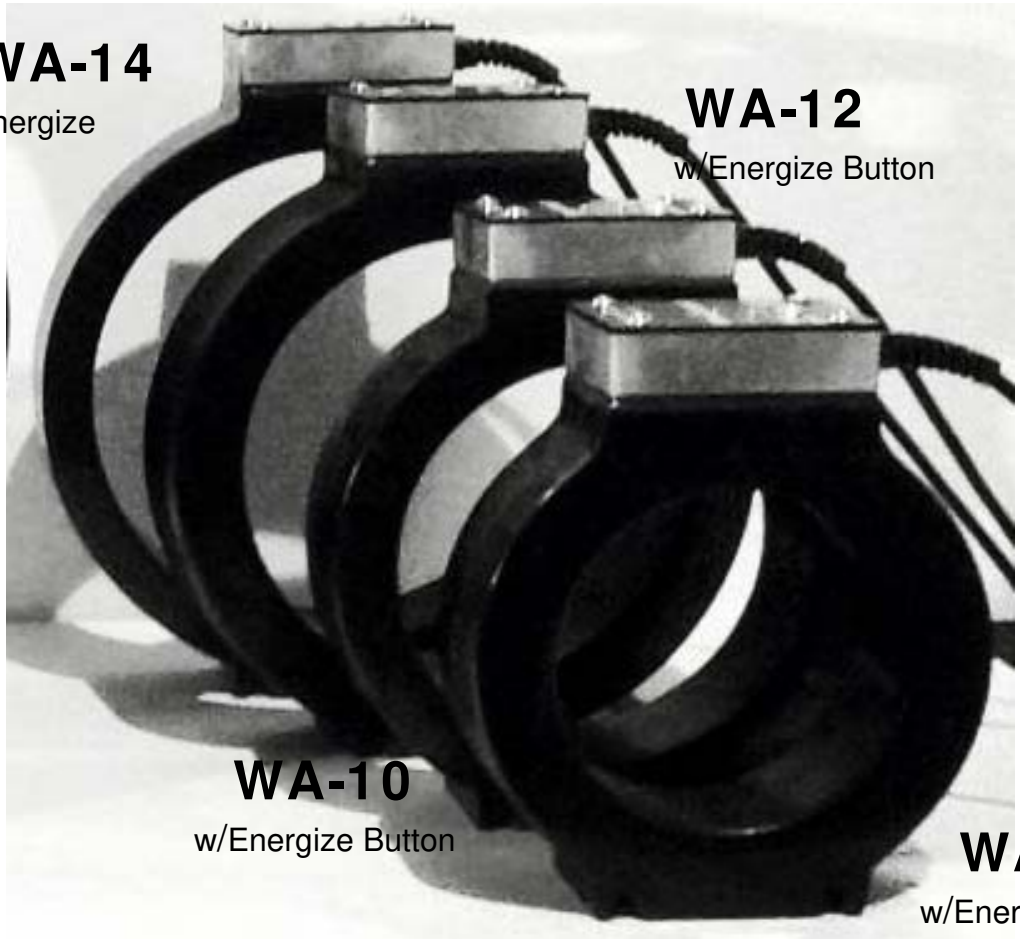
ONTARIO
275, Sheldon Drive, Unit 3
Cambridge, ON N1T 1A3
519-894-9069
nadams@qnde.ca

ALBERTA
7307, 50 street NW
Edmonton, AB T6B 2J9
587-689-6811
lfields@qnde.ca

www.qnde.ca 1-800-361-3630

and the Eddy Currents that form just below the surface act as a shield to any magnetism in the body of the workpiece. Therefore, to truly demagnetized any ferro-magnetic part, a reversing and decaying DC field must be used.

The WA-Series of AC Coils use a common Core to our Medium Duty WP-Series. However, WA-Series are not offered with any options so they truly are an entry level inspection Coil. Unlike the WP-Series which, when fully equipped, offer Variable Reversing DC Fields, so whatever it magnetizes, it can demagnetize as well.



DISTRIBUÉ PAR / DISTRIBUTED BY:
QUALITY NDE LTD

QUEBEC
164, St-Jean-Baptiste
Mercier, QC J6R 2C2
450-691-9090
info@qnde.ca

ONTARIO
275, Sheldon Drive, Unit 3
Cambridge, ON N1T 1A3
519-894-9069
nadams@qnde.ca

ALBERTA
7307, 50 street NW
Edmonton, AB T6B 2J9
587-689-6811
lfields@qnde.ca

www.qnde.ca 1-800-361-3630

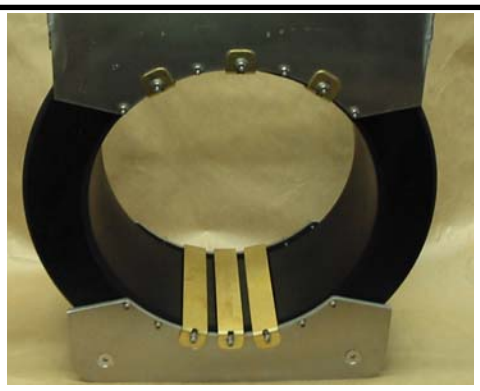
Western Instruments
Established 1965

Upper ID Wear Bars

The WDV-10 shown here, has been in field service for 2 years, and was equipped with ID Wear Bars prior to being delivered to the customer. ID Wear Bars are made of Brass, so they won't damage the part under test, and will slide easily on the workpiece.

ID Wear Bars are fastened in place, using the Tie Bars that are cast into the Coil Housing. The Tie Bars locate the Controls Housing to the top of the Coil Housing. The WDV-8's and WDV-10's are fitted with 3 ID Wear Bars (as illustrated), while WDV-14's are equipped with 5. WDV-16's through 24's are also equipped with 5 ID Wear Bars, however on the bottom side of the Coil Housing, we have cast in 3 extra Tie Bars. These extra Tie Bars can be used for mounting additional ID Wear Bars, but can also be used for other mounting purposes.

Lower ID Wear Bars

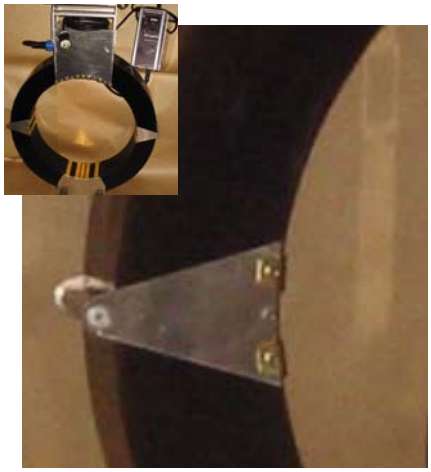


Over the years that Western has been manufacturing WD-Series Coils, we have seen damage to the Urethane Rubber Encapsulant. The most common is on the top inside surface, where the Coil is place on a pipe end and magnetized (or demagnetized). During 'End Area' use, operators tent to drop and drag the Coil over Upsets, Threads, or Couplings.

As the market for WD-Series Coils has expanded, we see many different applications, including bench top units. In this case we see the workpiece dragged over the lower ID surface of the Coil. If these workpieces are small the operator simply places them inside the coil, however as the weight and size of such components goes up, so does the potential for damage to the Coils.

To address the potential of wear and damage to the lower ID surface, Western Introduced Lower ID Wear Bars. The Mounting Plate (illustrated to the right) for these Wear Bars clamps to the Cast Coil Feet of the Coil. So retrofitting an existing Coil is fast and easy.

Side Wear Bars



Side Wear Bars are intended to protect the Coil Housing from axial impacts, when the ID of the Coil is only slightly larger than the outer dimensions of the Work Piece. Side Wear Bars also protect the ID Surface of the Coil from workpiece abrasion.

Typically installed on larger Coils, the number of Side Wear Bars used will very from Coil Size and Service Duty. Illustrated to the left are 2 Side Wear Bars mounted on a WDV-25 Coil used for Casting Inspection. When used to Demagnetize Pipelines, a WDV-25 would be equipped with 4 Side Wear Bars located at 2, 5, 8, and 10 O'clock positions.

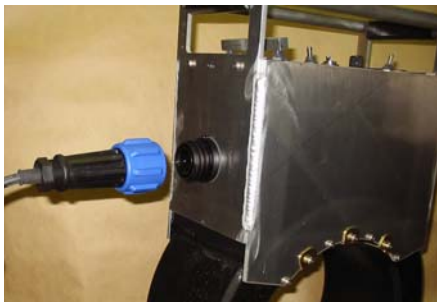
ID Wear Bars are Clamped to the Coil, so they can be positioned at any point around the Coil.

Cast Coil Feet

The Cast Coil Feet are installed on WD-Series Coils as a secondary operation. The Feet have several uses; Firstly, they keep the Coil from rolling when the operator sets it on the floor, ground, or table. Secondly, the Cast Coil Feet give the operator additional holding points (handles) when he lifts the coil onto the end of the workpiece or bench. Third, the Cast Coil Feet protect the lower outside of the Urethane Rubber, from abrasion or damage from floors, grading, etc. The Cast Coil Feet are used in conjunction with the Lower ID Wear Bars, for holding the Mounting Plate in place. Lastly, WD-Series Coils can be installed on conveyers or hung inside an Inspection Booth and here again the Feet are used for mounting.

When the Feet are used for mounting, Round Aluminum Bars installed (and captured) in on of the two different hand holds within each foot, which are ¾" (19mm) or 1" (25mm) in Diameter. The Bars in turn are held in place by Mounting Plates, which clamp against the Coil's base. These Bars and Mounting Plates are easily installed by the customer where the Cast Coil Feet Option has been installed With this versatility, these captured bars have commonly used for hanging Coils, from overhead supports, as show with the inset picture.

Removable Power Cord



One of the most common repairs to Portable Equipment is the Power Cord becoming damaged by accident or carless operators. In an attempt to mitigate these mishaps, WD-Series Coils are offered with Removable Power Cords. As illustrated to the left, a male connector is installed into the Controls Housing, and accepts the female threaded Connector.

These connectors are also fitted with one of our standard Cord Protectors, which provides extra strain relief. Therefore if the connector or power cord is damaged, you will know there has been a great deal of strain applied to these components.

Cast Handle Grips

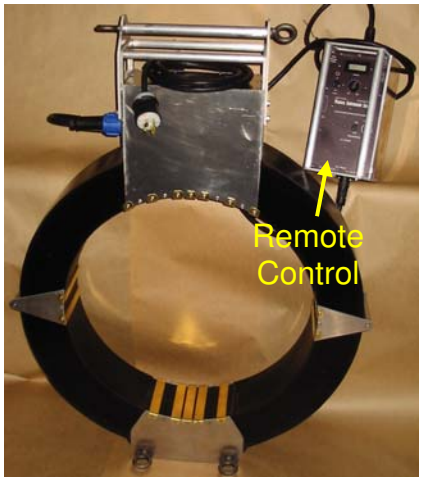
When WD-Series Coils were introduced with out new Welded Control Housings, the side handles became thinner, which made the grips hard to use. We very quickly introduced Cast Handle Grips for the Welded Housings. These economically priced 'finger saving' grips are a must for all new WD-Series Coils. For our long standing Coil Customers, a wider grip is now available and is added to all older Coils that are sent in for repair and Calibration.

Lifting Lugs

WDV-16 and larger Coils are a little heavy to be handled by a single operator, so Western has designed a Vertical Lifting Lug assembly that is attached to the Control Housing. This feature allows the Coils to be lifted (or suspended) vertically, for convenient positioning on and off of the workpiece. If horizontal handling is required, Western can also provide the Lower Lifting Lug Assembly (illustrated to the right). When the Upper and Lower Lifting Lugs are connected with a sling, the Coil can be Lifted horizontally on and off of the work piece.

Remote Controls

One of the many benefits to WD-Series Coils is the Self Contained Controls. Again, for larger Coils, where they are a little heavy to be handled by a single operator, Western now offers Remote Controls. The curved lower portion of the Control Housing is removed, and a solid bottom is Welded Into to form the bottom of the light and rugged housing. This allows operators to move around the workpiece and having full access to the controls.



Again, intended for larger coils, Remote Controls have also been installed on high through-put inspection stations. When operators want to upgrade Aluminum Bobbin Coils, our Remote Control Housing provides the versatility of the WD-Series Magnetization Controls, with the reliability of the WD-Series Demag capabilities.

Western instruments Inc. - Magnetic Coils, Models, & Summary

Model	Description	I.D. in/mm	Amperes & Voltage	Amp Turns/ Gauss	Comments January, 2017
WA-Series Magnetizing Coils					
WA-8	AC Coil.	8 Inches 201 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	4,250	Used with Wet/Dry Method Media for Magnetization applications. Normally used to find transverse cracks in Tubes/Pipes, Shafts/Bars, or Small Parts. Standard foot switch. 115/60 or 230/50 (WA-8K)
WA-10	AC Coil.	10 Inches 254 mm	15 Amps 115V/60Hz 8 Amps 230V 50Hz	4,150	Used with Wet/Dry Method Media for Magnetization applications. Normally used to find transverse cracks in Tubes/Pipes, Shafts/Bars, or Small Parts. Standard foot switch. 115/60 or 230/50 (WA-10K)
WA-12	AC Coil.	12 Inches 305 mm	16 Amps 115V/60Hz 9 Amps 230V 50Hz	4,050	Used with Wet/Dry Method Media for Magnetization applications. Normally used to find transverse cracks in Tubes/Pipes, Shafts/Bars, or Small Parts. Standard foot switch. 115/60 or 230/50 (WA-12K)
WA-14	AC Coil.	14 Inches 355 mm	16 Amps 115V/60Hz 9 Amps 230V 50Hz	3,875	Used with Wet/Dry Method Media for Magnetization applications. Normally used to find transverse cracks in Tubes/Pipes, Shafts/Bars, or Small Parts. Standard foot switch. 115/60 or 230/50 (WA-14K)
WP-Series Magnetizing / Demagnetization Coils					
WP-8	AC only Coil	8 Inches 201 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	4250 AC	Base model of these Small ID Medium Duty Coils. Up-gradable with DC Options, to allow these Coils to be full feature for greater inspection capabiliies.115/60 or 230/50 (WP-8K)
WP-8D	AC and DC Coil	8 Inches 201 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	4150 AC 6000 DC	Base AC / DC model of these Small ID Medium Duty Coils. Up-graded with DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-8DK)
WP-8DV	AC with Varriable DC Coil	8 Inches 201 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	4150 AC 0 to 6000DC	AC / Varriable DC model of these Small ID Medium Duty Coils. Up-graded with Varriable DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-8DVK)
WP-8DVR	AC with Varriable and Reversing DC Coil	8 Inches 201 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	4150 AC +/- 0 to 6000DC	AC / Varriable and Reversable DC model of these Small ID Medium Duty Coils. Up-graded with Varriable and Reversting DC Option, to allow Reversing DC Demag capabilities.115/60 or 230/50 (WP-8DVRK)
WP-10	AC only Coil	10 Inches 254 mm	15 Amps 115V/60Hz 8 Amps 230V 50Hz	4150 AC	Base model of these mid-Size Medium Duty Coils. Up-gradable with DC Options, to allow these Coils to be full feature for greater inspection capabiliies.115/60 or 230/50 (WP-10K)
WP-10D	AC and DC Coil	10 Inches 254 mm	15 Amps 115V/60Hz 8 Amps 230V 50Hz	4150 AC 6000 DC	Base AC / DC model of these mid-Size Medium Duty Coils. Up-graded with DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-10DK)
WP-10DV	AC with Varriable DC Coil	10 Inches 254 mm	15 Amps 115V/60Hz 8 Amps 230V 50Hz	4150 AC 6000 DC	AC / Varriable DC model of these mid-Size Medium Duty Coils. Up-graded with DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-10DVK)

WP-10DVR	AC with Varriable and Reversing DC Coil	10 Inches 254 mm	15 Amps 115V/60Hz 8 Amps 230V 50Hz	4150 AC +/- 0 to 6000 DC	AC / Varriable and Reversable DC model of these mid-Size Medium Duty Coils. Up-graded with Varriable and Reversting DC Option, to allow Reversing DC Demag capabilities.115/60 or 230/50 (WP-10DVRK)
WP-12	AC only Coil	12 Inches 305 mm	16 Amps 115V/60Hz 9 Amps 230V 50Hz	4050 AC	Base model of these Larger Size Medium Duty Coils. Up-gradable with DC Options, to allow these Coils to be full feature for greater inspection capabiliies.115/60 or 230/50 (WP-12K)
WP-12D	AC and DC Coil	12 Inches 305 mm	16 Amps 115V/60Hz 9 Amps 230V 50Hz	4050 AC 6000 DC	Base AC / DC model of these Larger Size Medium Duty Coils. Up-graded with DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-12DK)
WP-12DV	AC with Varriable DC Coil	12 Inches 305 mm	16 Amps 115V/60Hz 9 Amps 230V 50Hz	4050 AC 0 to 6000 DC	AC / Varriable DC model of these Larger Size Medium Duty Coils. Up-graded with DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-12DVK)
WP-12DV	AC with Varriable and Reversing DC Coil	12 Inches 305 mm	16 Amps 115V/60Hz 9 Amps 230V 50Hz	4050 AC +/- 0 to 6000 DC	AC / Varriable and Reversable DC model of these Larger Size Medium Duty Coils. Up-graded with Varriable and Reversting DC Option, to allow Reversing DC Demag capabilities.115/60 or 230/50 (WP-12DVRK)
WP-14	AC only Coil	14 Inches 355 mm	18 Amps 115V/60Hz 10 Amps 230V 50Hz	3875 AC	Base model of these Larger Size Medium Duty Coils. Up-gradable with DC Options, to allow these Coils to be full feature for greater inspection capabiliies.115/60 or 230/50 (WP-14K)
WP-14D	AC and DC Coil	14 Inches 355 mm	18 Amps 115V/60Hz 10 Amps 230V 50Hz	3875 AC 6000 DC	Base AC / DC model of these Larger Size Medium Duty Coils. Up-graded with DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-14DK)
WP-14DV	AC with Varriable DC Coil	14 Inches 355 mm	18 Amps 115V/60Hz 10 Amps 230V 50Hz	4050 AC 0 to 6000 DC	AC / Varriable DC model of these Larger Size Medium Duty Coils. Up-graded with DC Option, to allow surface and sub-surface inspection capabilities.115/60 or 230/50 (WP-12DVK)
WP-14DV	AC with Varriable and Reversing DC Coil	14 Inches 355 mm	18 Amps 115V/60Hz 10 Amps 230V 50Hz	3875 AC +/- 0 to 6000 DC	AC / Varriable and Reversable DC model of these Larger Size Medium Duty Coils. Up-graded with Varriable and Reversting DC Option, to allow Reversing DC Demag capabilities.115/60 or 230/50 (WP-12DVRK)
WS-Series Magnetizing Coil					
WS-8	Pulsed DC Drill Pipe Coil	8 Inches 201 mm	15 Amps 115V/60Hz 15 Amps 230V 50Hz (Inrush Current)	21,000 DC (@1Hz) 1,125 Gauss	Pulsed Drill Pipe Coil, with fixed DC output. Using our specialized Capacitive Discharge Power Supply, that pulses once per second. 50% Duty Cycle.115/60 or 230/50 (WS-8K)
WS-10	Pulsed DC Drill Pipe Coil	10 Inches 254 mm	15 Amps 115V/60Hz 15 Amps 230V 50Hz (Inrush Current)	18.000 DC (@1Hz) 800 Gauss	Strong DC Field like the old Drilco Pulse Coils. WS Coils are activated intermitently with our durable *Endrgize* Button.
WS-12	Pulsed DC Drill Pipe Coil	12 Inches 305 mm	15 Amps 115V/60Hz 15 Amps 230V 50Hz (Inrush Current)	17,000 DC (@1Hz) 620 Gauss	4 ID Sizes; 8” (203mm), 10” (254mm), 12” (305mm), and 14” (356mm),
WS-14	Pulsed DC Drill Pipe Coil	14 Inches 355 mm	15 Amps 115V/60Hz 15 Amps 230V 50Hz (Inrush Current)	16,000 DC (@1Hz) 470 Gauss	Powerful DC Pulse, once per second from a our CD (Capacitive Discharge) Power Supply. Results in a strong Residual Field. Meets requirments for an Active Field Inspection

WD-Series Magnetizing / Demagnetization Coils

WDV-8	DC Coil	8.5 Inches 216 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	12,500	**1.** The Size (Inside Diameter) of WD-Series Coils is to be sized to the physical size of the Work Piece to be inspected. Based on 1000 Amps per inch of ID.
WDV-10	DC Coil	10.5 Inches 267 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	12,000	**2.** All WD-Series Coils have an integral Variable Amperage Power Supply, built into the integral Control Panel mounted on the top of the Coils..
WDV-14	DC Coil	14 Inches 368 mm	13 Amps 115V/60Hz 6.5 Amps 230V 50Hz	14,000	**3.** The Power Supply includes Infinitely Variable Amperage, Switched Reversible Polarity, and an LCD which always Displays the Amperage setting.
WDV-16	DC Coil	16 Inches 406 mm	8 Amps 220V/60Hz 8.5 Amps 230V 50Hz	16,000	**4.** WD-Series Coils are manufactured specifically for either 115VAC x 60Hz, or 230VAC x 50Hz power input Other Voltages can be accommodated
WDV-18	DC Coil	18 Inches 457 mm	10 Amps 220V/60Hz 11 Amps 230V 50Hz	18,000	**5.** The most common applications of WD-Series Coils is for; Oil Well Drilling Assembles, Moderate size Castings, Engine Components, etc.
WDV-25	DC Coil	25 Inches 635 mm	12 Amps 220V/60Hz 14 Amps 230V 50Hz	24,000	**6.** WD-Series Coils (under 14" / 368mm) have an optional Automatic Ring-Down (Demagnetization) Option. For fast, reliable, and repeatable Demagnetization.

Note: All WD-Series Coils are available with the exclusive AC Option. AC is added to the End of the Model Number (I.e. WDV-16-AC)

7. The Removable Power Cord is for operators who may want extra mobility without the use of an Extension Cord.

Encapsulated in urethane rubber. Ergonomically designed for comfort and use.

8. Pulse DC Option aids in particle mobility, and ensures the ability to perform an Active Field Inspection.

All units supplied with 2.5m (8') 3-16 SOOW power cord.

9. See Web Document *Coil Options* for all avaliable Options.

WD Options

'K' - Added to any coil designation designates 230VAC 50Hz (Frequency may affect output) CSA, UL, & CE

1 - Supplementary Feet also act as handles to aid handling, furthermore they provide a base to keep the coil from rolling.

2 - Standard Foot Switch recommended for high throughput. Also available on WP-Series Models. Included on WA-Series Models, or Energize Button at no cost.

Removable Foot Switch, permits operation with our without the connection of the Foot Switch

Water Resistant Foot Switch, used in particularly Wet enviorments with high throughput

3 - Pulsed DC, permits the operator to perform an Active Field Inspection with a Pulsing Field (80 pulses per minute).

4 - ID Wear Bars - Upper, to protect the Top Inside Surface of the Coil (Coil dragged on surface of the work piece)

ID Wear Bars Lower, to protect the Bottom Inside Surface of the Coil (Work piece being dragged on the lower surface)

Side ID Wear Bars,

5 - AC Option, is 4000 Amp Turns on WD-Series Coils 16"ID and under. Not available on WDV-18 and Larger Coils. While the AC Option permits AC testing, it also aids Demag procedures as well.

6 - Automatic Ring-Down for High throughput Demagnetization on common parts.

7 - Removable Power Cord, for Rough Operators

8 - Control Housing Liftiing Lugs, for hanging smaller ID Coils, or Lifting larger ID (Heavy) Coils

9 - Pipe End Centralizer Assemblies, for Pipeline Preweld Demagnetizaion

DISTRIBUÉ PAR / DISTRIBUTED BY:
QUALITY NDE LTD

QUEBEC
164, St-Jean-Baptiste
Mercier, QC J6R 2C2
450-691-9090
info@qnde.ca

ONTARIO
275, Sheldon Drive, Unit 3
Cambridge, ON N1T 1A3
519-894-9069
nadams@qnde.ca

ALBERTA
7307, 50 street NW
Edmonton, AB T6B 2J9
587-689-6811
lfields@qnde.ca

www.qnde.ca 1-800-361-3630