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Established 1965

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Demagnetization of Tube, Pipe, and Bar

(Manually, using a WD-Series Coil, without a Conveyer)

In order to Demag (Demagnetize) a work piece that is long (greater than 3 Coil diameters), you can't simply do it from one end or in the center. A Coil will Demag from its centerline (transverse to the longitudinal axis) in either direction, by ½ the diameter. You start at an end, if you just want to Demag the one end. To Demag the whole length, without a conveyer, you start in the middle and work your way out to each end. After all a magnetized Tube, Pipe, or Bar is simply a bar magnet.

Before Demaging, you must survey the length of the work piece to insure it has an "Even" magnetic field. This survey would be performed with a W-FI-50, so you can easily watch the field change. If a field is strong, and say positive, at one end, and as you walk to the middle of the work piece it goes to zero, its is a good sign. As you continue to the opposite end of the work piece the field goes to the same strength but is negative, then you can proceed, as the field is "Even" over the length of the work piece. An Even field also indicates the work piece is magnetized Longitudinally.

To start, you are going to divide the work piece into equal Longitudinal Divisions that are one Coil Diameter long. If you are using a WDV-14, those divisions should be about 350mm long. Start in the Middle, and for illustration let us say the work piece is 3 meters and Division 5 (of 9) is the middle. You must first approximate the Coil Amperage Setting to ensure it is slightly lower than the residual field at a given division. At Division 5 you will start on the low side to Demag it. 5 Reversing Cycles should be all that is required at each Division, unless the field is very strong.

With the middle Demaged, move to Division 4 and Demag it. When moving the Coil to a new division, you must keep track of the field direction in each Division and set the Coil Polarity accordingly. You don't want your first Demag cycle to be the same polarity as the residual field, it needs to be opposite and lower. This is where you want to switch to your W-FI-10 for measuring both direction and strength. With Division 4 Demaged, you want to move back to Division 6 and Demag it. After 6 is Demaged, you then back to Division 3, and Demag. Repeat this procedure down to the ends. If your survey, evaluating the magnetic field, was correct your work piece should be Demaged, which by most specifications is +/- 3 Gauss.

If the Field is Un-Even over the length of the pipe, you must attempt to induce an "Even" field (described above). Lift the work piece, at one end, with a non-magnetic Sling, while the opposite end is on a rack. Energize the Coil to about 50% of the

Amperage (or just below the maximum field you have measured), you place the coil over one end, and walk it to the opposite end. When moving and maneuvering around slings, do not turn off the Coil. This takes several men to lift and lower the Pipe, and one to operate the Coil. It is very fast with a conveyer!!!

With an Even Field induced, use the procedure above, by starting in the middle and working your way out to the ends. An Un-Even Field could be caused by several factors, such as a slightly transverse field. In the Case of an assembled oil weld drilling tool, or a Compressor Rod there will be internal/external shoulders or the work piece may have multiple internal parts that increase/decrease the mass over its length. If after attempting to Even out a field, there are still variations over the length, you have two choices. First you could try a complete Demag Cycle (starting in the middle), or Secondly, set the Coil's Amperage slightly higher and try to Even out the field again. However, do not take the Amperage above 90% of the Coils output when attempting to Even the field out, as you may not be able to knock the field out again.

Using the basic procedures outlined above, we have customers locally who regularly Demag Jars and other assembled Down Hole Tools. Assembled Mud Motors can be Demaged but often take multiple attempts because short cuts were taken when putting in an Even Field. No mater the size of a part, it pays to demagnetize it individually, as assembled components are far more difficult to Demag.

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