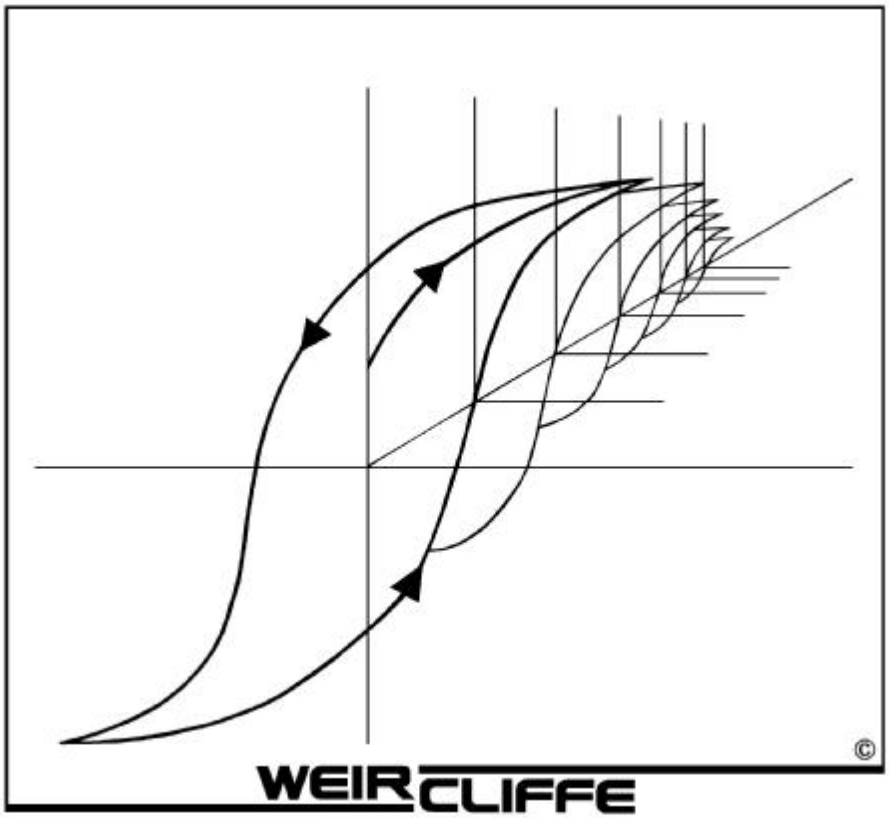
Degaussing Described

Originally published in hard copy by Weircliffe International Ltd in 1990 due to the interests of magnetic media users and others who are affected by the phenomena of Ferro-magnetism, and required concise background information.



Weircliffe Intentional Ltd

Weircliffe Park

St Andrews Road Exwick

Exeter EX4 2AG

Devon England

Ninth English Edition DD9/01/06

Models described in Weircliffe catalogues and elsewhere are subject to a continuing process of technical change and development. Weircliffe therefore reserves the right to alter specifications without notice at any time before delivery. All descriptions, illustrations, specifications, and dimensions are approximate and are intended to present a general guide to the goods therein. All Weircliffe products are trademarks or registered designs of Weircliffe International Ltd.

Forward to the Ninth English edition

We were very pleased with the widespread welcome accorded to the five editions of our booklet "Degaussing Described" first published in 1990, followed by the transfer to this website

Weircliffe export to a world market, including many countries where English is well understood although not necessarily the readers "mother tongue". In addition to this Ninth English language copy, the original German, French, Italian & Spanish versions are still available.

Regretfully process charges have increased such that we cannot continue these frequent language updates and ensure accurate technical translation.
As with the previous issues we especially have the needs of our new readers in mind, as well as trying to respond to the helpful suggestions that followed the publication of the earlier editions.

We have of course updated it where necessary including detail on media formats to show developments in magnetic recording technology.

Should you wish to comment or suggest changes to further editions, please advise us.

This UK English ninth versions definition takes precedent where other language versions are used. Please enquire regarding other update options

Gerald Bailey
Managing Director

About Weircliffe

Our predecessors, Amos of Exeter Ltd, pioneered the production of bulk magnetic erasers at Weircliffe more than 40 years ago and they have been manufactured here on the outskirts of Exeter, a historic city midway between Bristol to the east and Plymouth to the west, in Devon, England. Ever since - Models 6,7,8 and 9 still providing service to the Ferric Media user. They named the operation "Weircliffe" as their residence bore that name, a house overlooking the Weir of the river EXE.

Since the 1980's we had responded successfully to the challenge of degaussing new media like digital cassettes, mirror duplication masters, high capacity computer tape streamers, changing formats in the instrumentation field, and hard drives, monitoring our efforts using MFM, Magnetic Force Microscopy where necessary, our singular object being always to ensure the professional destruction of the recorded data.

Respect for contemporary and evolving standards of personal safety, environmental protection, and performance are design criteria at Weircliffe. To ensure that our goals are correct our product is third party tested by a UKAS approved facility against Internationally recognised standards for Electrical Safety (EN60950), quality control maintained by examination originally BS5750 now within ISO9001 **:** 2000 making CE compliance for areas with such requirements is assured.

Over time we have developed a wide range of differing special application product your "unique" application may have already been catered for equally it is not practical to list here all the voltage and frequency variations available. Please Email or Fax us for the price for non-standard requirements designed uniquely for your purpose

The Weircliffe Team principals are:

Gerald [Geoff] Bailey Managing Director

Anita Jane Bailey Director Administration

Stephen Clarke Product Executive

Jane Natolie Art Design
Alan Richards Web Design

Carolynn Binnie Web Support

We use simple email sales@weircliffe.com finds all or any of us

A note about the terms we use

In our work at Weircliffe, we have found some confusion between various words used to identify the types of material and packages our customers' use, so we decided in writing our technical literature to allocate the following meanings to one or two of them.

MEDIUM: The magnetic material (FexOy, CrO2 specially deposited metals, etc.) that carries recorded information in the form of a pattern of magnetisation. To avoid worse confusion with its use as an adjective or adverb -- "medium height" or "medium rare", for instance, we use it very often in its plural form MEDIA

MEDIA ITEM: A media package ready for practical use, i.e., a reel, a cart, cassette, a floppy disk i.e. FDD. The hard drive i.e. HDD need a little more detail, the package can contain one or several platters on which data is stored. Modern HDD items often give no indication of the number of platters within or the magnetic characteristics of these platters. When it does not impair the meaning, we often abbreviate the term to simple "ITEM".

The hard drive i.e. HDD requires a little more detail, the HDD sealed package i.e. frame/ PCB assembly can contain one or several magnetic platters on which data is stored.

Modern HDD items often give no indication of the number of platters within the shell or the magnetic characteristics of these platters.

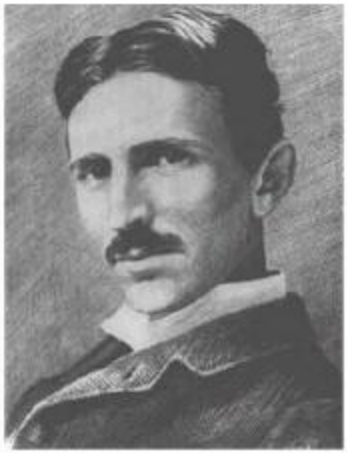
If you feel we offend against the rules of grammar, we hope you will still find our meaning clear!

What is Degaussing?

The Process

Information is stored on a magnetic recording medium (ferric oxides, chromium dioxide, etc.) by magnetising sections of it from a local field, in most cases the recording process itself, the amplitude and frequency of which vary according to the information it is carrying. This information is distributed along the recording track by the movement of the medium relative to the recording head, be it rotary or linear, digital recording being a sequence of zero - 0 & one - 1, packets.

It is possible in most equipment to erase it by passing the medium across an erase head but this normally would be in a time equal to record time. It is speedier and hence more practical to submit the bulk of the medium to a field that can be made to demagnetise it in one short operation. This is achieved by subjecting it in bulk to a series of fields of alternating polarity and gradually decreasing strength. Equipment that does this is a "Degausser" (otherwise known as a Bulk Eraser i.e. not in real time, rather than in-bulk meaning quantity). Regardless of name, its function is to reduce to near zero the magnetic flux stored in the magnetised medium. Flux density is measured in Gauss or Tesla.



J.K.F. Gauss 1777-1885 and N. Tesla 1857-1943
(Images reproduced by kind permission of the IEE archive)

Passing alternating mains current through coils, which energise the erase heads, produces the degaussing field. It is considerably stronger than the field used in the original recording and magnetises the medium alternately in opposite directions each half cycle.
Not unsurprisingly, the Gauss and the Oersted were units used in the original C.G.S. units of measure

The degaussing field is now measured in Amps/Metre the current S.I./M.K.S. unit further detail can be tracked form http://en.wikipedia.org/wiki/Gauss

Stop the Story

We have received many queries regard the C.G.S. units that are still published so here for those who would like more detail some extra information their relationship is given in the formula.

Magnetic Units

The gauss and Oersted are units used in the old c.g.s. units of measurement. Their relationship is given in the formula

$$B = u_r \; u_o \; H$$

Where

B is the flux density in gauss

u_r is the relative permeability, a pure dimensionless number. In air or non-magnetic media, it has a value of 1.

u_o is the permeability of free space and is 1.

H is the magnetic field strength or magnetising force in Oersted.

Therefore using c.g.s. units when measuring the magnetic field in air,

Numerically 1 gauss is equivalent to 1 Oersted

In the M.K.S. units, which are more commonly used today, the same formula applies but:

B is the measured in Tesla
u_r is a pure number and is 1 in air.
u_o has a numerical value of 1.257×10^{-6}.
H is measured in amps/metre.

Therefore, numerically 1 Tesla is equivalent to 7.96×10^5 A/m

To convert from c.g.s. to m.k.s. units 1 Tesla – 10^4 gauss

Summary

Starting unit	Oersted	Gauss	Amp/metre	Tesla
1 Oersted	--	**1**	**79.6**	**10^{-4}**
1 Gauss	1	--	**79.6**	**10^{-4}**
1 Amp/metre	**1.257×10^{-2}**	**1.257×10^{-2}**	---	**1.257×10^{-6}**
1 Tesla	**10^4**	**10^4**	**7.96×10^5**	--

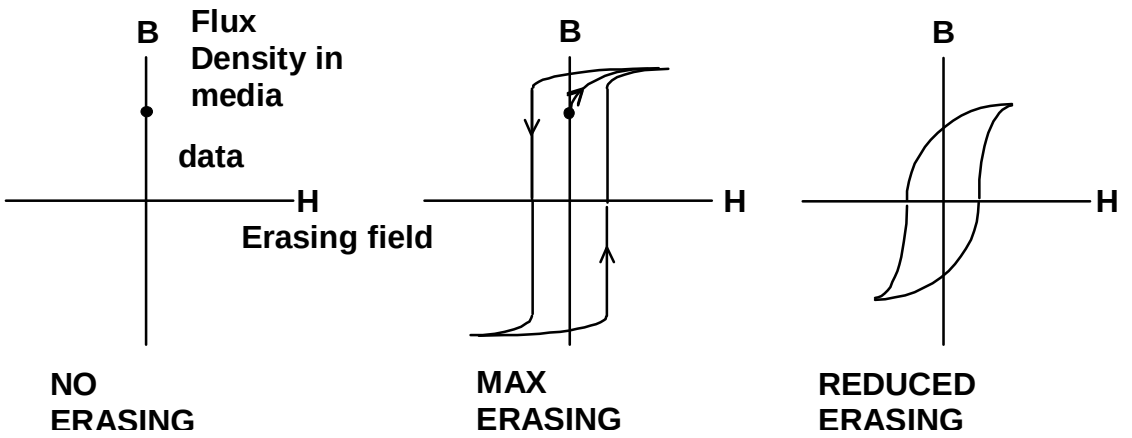
An additional "confusion factor" in practical every day terms is that of accurately measuring an AC field without a pure sine wave power source. We consider these analogues to measuring smoke and therefore we do not publish AC degaussing force figures that can be interpretive and less than helpful when making product judgements.

Back to the story

During the process, the media item (cart, cassette, reel of tape, disk (FDD or HDD) etc.) is passed at a slow constant speed across the heads and out of their erasing fields. This is similar in many respects to a car slowly progressing through the water mist in an automatic car wash, in some, the car is stationary and the wash moves, others the car moves. Regardless of the sequence involved the wash and then the rinse equals the two passes. In others pre-wash, wash, rinse, dry, equals four passes. Of course, both have considerable user benefit in both time and quality when compared to a similar function performed with a bucket and sponge, or a permanent magnet in our terms

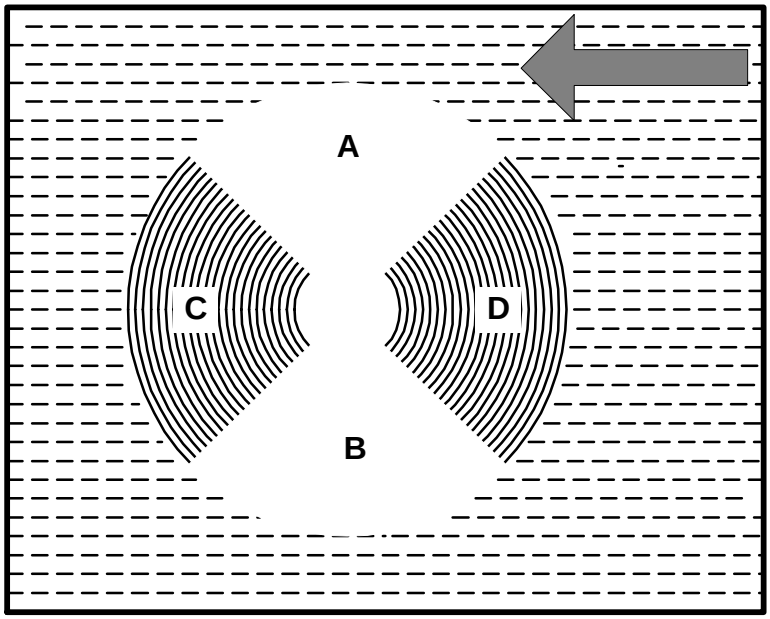
The movement away from the erase heads has the effect of gradually reducing the magnitude of the alternating erase field to zero, thus ultimately leaving the medium demagnetised. The degaussing field must be strong enough to fully saturate the medium tracing the hysteresis loop path and thus to swamp all the information already recorded there but the field must then be gradually reduced as just described if unacceptable residues of the erase field are to be avoided. (See: "Moving the Media Unit")

Fig1



Plan view of the erasing field, showing the direction of the erasing field in relation to that of a coiled magnetic medium. In areas A and B, where the two are in line, the medium will be degaussed, whilst in areas C and D it will be largely unaffected because they are at right angles.

Fig 2.



..... **and pointing it the right way**

Although we make the erasing field strong enough to saturate the media, it still only degausses properly in the direction of its own magnetic flux; at right angles to this direction, for instance, it has little effect. Figure 2 illustrates this, and shows why you have to pass it twice along the platen of the basic degausser. To ensure the two groups of segments are equally processed, it has to be rotated through 90° between the two passes.

Cooking it through

A general guide: If you are degaussing a fairly thick media item, the far side of the tape is such a distance from the surface of the platen / drawer tray, below which is positioned the degauss coil that it may not be near enough to be properly degaussed. Just as if you were grilling a thick steak, you can normally overcome the effect by turning the media over between the two passes but otherwise you may need a total of four passes for satisfactory erasure for each quadrant (See Fig 2.) That is to say, you will have to:

First Pass: Pass it once over the degausser coil head, i.e. across the platen. With a media drawer, Push close then Pull open without interruption

Second Pass: Turn it through 90^{o} and over: re-pass, as detailed above

For general commercial applications, this is the norm, approx time to process 12 seconds.

For security and hard drive destruction repeat process is recommended:

Third Tape Pass: Turn tape media over and pass again

THIRD HDD Pass: Do Not Turn Over Hard Drives repeat pass 1

Fourth Pass: Turn it through 90^{o} and complete the final pass.

Total process time some 25 seconds

This apparently complex process allows us to reduce to a minimum the energy (supply amps) requirement of the device and the external magnetic fields that are radiated to the environment.

See Health and Safety section of website

Moving the Media Unit

It is important to move the media unit away from the erase heads always in the fashion just described because if you move it abruptly or suddenly switch off the field, a magnetic pattern may remain recorded from the degaussing field itself. This produces the troublesome effects of "lumping" or "spooking", which are likely to show up in various ways when the tape is replayed, with data backup units detecting ”bad media” incorrectly.

The effects may include a low, cyclic "thump" during the replay of analogue audiotape, especially at high speeds. Where an automatic duplicating plant is handling tape masters, a carelessly spooked tape may cause a complete malfunction of the loader, since tape output is likely to be used to generate control signals for the duplicating equipment. These effects are additional to any that can be caused by incomplete erasure of the media itself.

Traditional open field Degausser’s such as BTE 27a, 27aT, BTE 28a, BTE 28aS, BTE 16aM, BTE 16aT BTE 29aM and BTE29aT all require the operator to manually slide the media across the top platen of the degausser twice or four times dependent on the unit, media and result required. Hand Held units of the BTE 1 and BTE 2 type require a somewhat differing method of use, detail of which of course is provided with the device, i.e., for erasing Media or the degaussing of Display units and their associated metal mounts.

In the Magnetic shielded drawer operated units - BTE 200 all types, BTE 220, BTE 220M, BTE 210SP and BTE 215SP - the erase field is automatically controlled by the unit as the operator loads and processes the media. However, the operator is still responsible for ensuring that the media is positioned correctly and that the full erase process is completed. It is achieved by the control of the speed at which the screened drawer containing the media unit is closed and then withdrawn. In other words, the speed of movement of the drawer plays a critical part in the degaussing procedure; it is NOT like using a microwave cooker, for instance, in which the process does not start until the door is shut and then completes itself with a satisfying "ping"
The physical ***drawer movement*** is therefore ***essential*** to the process.

It is only in the rotary style BTE 120 series and in high volume, conveyor production models like the BTE 300, BTE 303, BTE 400, and BTE 500 that the movement of the media unit through the field is fully automated and so calls for no special operator skill in this respect.

How much automation?

Weircliffe Degausser's which automate various of these processes allow you as the buyer to make your own choice of the trade-off between the extra cost and the various operating advantages they bring in your individual situation.

The BTE 120nM range includes a carousel into which you can place cassettes data or video, hard drives and tape reels to 15 ins size, the larger ones individually or the smaller ones in multiples; this system makes the machine an automated, multipurpose degausser.

BTE 120wM similar to above plus the acceptance of the DCRSI cassette. Control from the single push button fitted to the BTE 100SP the BTE 101SP and the BTE 120 makes for the ultimate in simplicity and with the integral interlocks offers a measure of security especially attractive during the erasure of sensitive proprietary records.

The BTE 120zKu NATO Catalogue No. 51RA5172058, includes all the benefits of the DCRSI cassette and multi-voltage multi-frequency operation either 230 volt 50 or 120 volt 60Hz merely by changing the power cord. These Carousel units retain the media within a Zote foam insert sectioned by the user to suit the media in use.

In the BTE 100SP & BTE 101SP machine, for instance (which are designed for professional audio, video & instrumentation applications reels to 16 ins size, to provide constant, clean and smooth erasure) you benefit from process automation as well. A field of controlled intensity is applied by erase heads above and below the media, which move from the edge to the centre and back during the erase cycle and so carry out the full process in a single pass.

The Weircliffe Shielded single pass conveyor erasers - BTE 300, BTE 303, BTE 400 and BTE 500 - are used by high volume users and automate the whole process in a somewhat different way. They have two sets of coils mounted at right angles to each other with a set of heads positioned above and below the moving conveyor belt. In these conveyor machines, a single pass through the system is the degaussing equivalent of four passes through a lower cost manual machine.

Consideration should be given to both the unit's energy requirements and the differing media coercivity and volumes to be processed when specifying the erase power required.

Hard & Soft 'Centres' *.....*

Some recording media are magnetically harder than others are - as with chocolate candy - you cannot say that one sort is necessarily better than another is, but it is important for us to be able to distinguish clearly between them. For this reason, tape manufacturers publish figures for the magnetic "hardness" of their media and call this their ***coercivity***, N.B. seldom is this information provided by HDD manufactures

They use two units to express their coercivity. The original Oersted, (Oe) H.C. Oersted 1777-1855, or alternatively the present day kilo Amperes per metre (kA/m). Just like litres and gallons, they are not the same as each other but are both as good for their purpose.

H.C Oersted 1777 - 1855 (Image reproduced by kind permission of the IEE archive)

The coercivity of a media item is the strength of field it would take to demagnetise it starting from a condition of magnetic saturation (filling a glass with liquid, when full - fully saturated). Saturation recording under test conditions allows the definitive performance of the degausser to be obtained. Commercial applications do not necessarily have the ability to saturate the media; obviously one of the many characteristics you need to know in choosing the best degausser for your purpose. We always show on our data sheets the analogue coercivity of the media our various machines are designed to degauss. You should not assume that if the media physical form fits the unit it will be satisfactorily erased by repeated passes through an inadequate strength field.

A "Quick Guide" table of the coercivity of media is available on this website, and you will see they vary widely. For instance, it will take many more times as strong a field to degauss a metal tape 1500/1900 Oe recorded from saturated long way length analogue signals, than an item of a higher coercivity written with short wave digital records with 2600 Oe (glass less than full). If you bought your present machine before high coercivity tapes, for example ME & MP were introduced, you cannot automatically assume it will be satisfactory to use on them, despite the years of faithful service it may have given you when its job was easier as with everyday ferric IEC type 1 audio 350 Oe, Lower coercivity - softer chocolate.

..... AND MAKING SURE YOU REACH THEM

We explained earlier that the degaussing field decreases with height above the platen, and that the media unit has to be turned over to compensate for the loss of field strength as the field penetrates the medium layers. The penetration loss effect is increased where the mechanics of the media case raise the actual tape away from the platen. An increased degaussing power is required to over come the penetration loss.

For example, you can erase chrome compact cassettes of 750 Oersted on the Weircliffe BTE 27aT but not VHS cassettes although they are of the same coercivity. This is because the VHS tape is quadruple the width and the design of the housing keeps it further from the platen. Air gaps represent barriers to the free flow of magnetic lines of force, you will have seen the magnet holding note–lets to the refrigerator door “fail” when just one more piece of paper is added as the air gap is exceeded.

Our references to VHS are for illustrative purpose as a common reference only. The equipment data sheets also use this, intended as a guide to help you to make a final choice, you may email us with other format queries should you wish if you feel it would be more helpful to discuss your needs with us.

Warm Work!

We can tell from the fundamental laws of physics that any AC degausser similar to an electric motor is bound to produce heat when it is working. Naturally, the harder you work it, the more heat it will produce. You should avoid the temptation to disregard the operating instructions we provide with each unit. For reasons of safety for the user and to protect both the degausser and the media it is erasing, we have to limit the temperatures they reach.

There are two ways we do this.

- We deliberately limit the working level at which we drive the degausser and

- We can take away the heat as quickly as the machine creates it (by fitting a extra fans for instance).

We describe one measure of a Degausser's capacity as its "throughput". We show it on our data sheets as the number of media items of a standard type normally VHS that the machine can degauss in a given time (usually one hour) using a particular power level, if this is adjustable on the degausser concerned.

It is another of the key factors to consider in choosing your machine. All figures quoted by us refer to physical operation in an ambient air temperature of 25° C, which coincides with the requirements of the safety standard we use, this is considered more practical than theoretical percentages.

We also include this in the data sheets this may be the continuous operating mode, which means that it is capable of working at the quoted level without interruption, or it may be a cyclic operating mode defined in some detail (see below).

It is important to remember than any of these modes hold only for the stated type of media and for the power level in use. If these conditions do not match your purpose, please let us know so that we can recommend something to suit you better.

A cyclic operating mode is necessary when the heat produced during degaussing is too high for continuous operation. It means simply that the field generator has to be shut down and allowed time to cool before you can use it again. In Weircliffe machines this is carried out by automatic thermal protection systems, which switch the erase fields off until cooled sufficiently and then signal to the operator that they are ready for work once more. This cycle of heating and cooling may be repeated indefinitely

You may sometimes see the term "Duty Cycle" used as a description of this sort of heating and cooling sequence. It is usually taken to mean the ratio of the time the machine spends at a permissible working temperature, as a fraction of the total time of the thermal on-off cycle. These times can also be specified in relation to media throughput and the equation can also be expressed in various arithmetic ways such as fractions, percentages and so on. Unfortunately, no standard exists to regulate these calculations nor in practice is the term “continuous” well defined. Figures can also be misinterpreted due to individual operator variations. Without an agreed standard Weircliffe, do not issue figures of this type.

As we have already mentioned, some machines may be used at more than one power setting, and the setting you choose will affect the throughput you reach. The data sheet for the BTE 303 machine, for instance, quotes a throughput of units of VHS 800 Oe media per hour in the continuous mode with the 'A' power setting, but you will need the higher 'B' setting to erase SVHS tapes of 1000Oe. The change of throughput can be clearly seen

With manual operated units to extend the period before the thermal cutout is activated, you may find it useful to apply the erase power sparingly. For instance, you can unpack and re pack the items individually during which time the unit will be cooling “standby “, instead of preparing them in larger batches to be processed together, only keep depressed the hand / foot control during the actual degauss operation i.e. only re energise the degausser when the erase process is to take place.

Operating the equipment at below the standard of 25^{o}C ambient will also increase the operating period from that quoted by us.

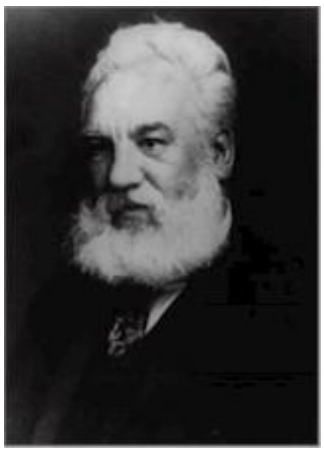
To sum up, you can extend to degaussing operations the kind of production management studies you would apply to any other process, taking account of the points we have just made as they apply to your individual circumstances. You may find the use of two small high power units operating in tandem, one cooling one in operation will provide a more useful throughput than single larger degausser an additional benefit being a reduction in “data at risk” as large units are seldom near data capture areas.

How low can you get?

Since the object of degaussing is to reduce to as near zero as practicable the magnetic field stored in the media, we also have to say how effective our various degausser models are for this purpose. We do this by quoting a figure for the depth of erasure, which we measure as the reduction the degausser produces in the stored field.

As with all things scientific it is necessary to define the basis of measurements to enable others in different parts of the world to duplicate the results.

In this case, we draw on the history of the measurement of analogue sound. This was pioneered by the Bell Laboratories in the USA who introduced the unit "bel" named after the inventor of the telephone in 1876, Alexander Graham Bell 1847-1922. [Note since 2002 now considered being Antonio Meucci as the phone's rightful originator]. A unit of one bel was applied to any measurement of sound related to the ear. The bel means simply "twice as loud to the human ear".



Alexander Graham Bell 1847-1922 (Image reproduced by kind permission of the IEE archive)

For practical purposes, the smaller unit the decibel or dB was employed. A base reference 0dB was introduced, the value of which was dependant on the type of sound measurement being made e.g. sound pressure or electrical energy.

The telephone companies finally established the reference for an audio signal at 0db of 775 mille volts RMS across 600 ohms or 0dBm, which has become the analogue standard of the Radio, TV and Sound equipment, World-wide. From this figure, measurements are made of increasing or decreasing ratios.

In commercial units, this is the reference Weircliffe use to determine the level of the signal recorded on our analogue test medium. The actual signal can be +8dB above the standard level or even higher, at a frequency of 1 KHz for fixed speed recorders, using an audio analogue channel. The depth of erasure quoted is the ratio down from this reference e.g. -90dBR.

Variable speed devices may differ dependant on wavelength requirements, 18.75 mil is quite a common reference.

And how do you know?

The measurement of depth of erasure is affected by several factors which may vary rather widely, and about which we have to make some assumptions in establishing the figures for our machines. These factors include the level at which the information is originally recorded in the medium, its nature - video, digital audio, computer data, etc., the frequencies at which the measurements are carried out, the coercivity of the medium and the precise details of the measuring equipment (with its choice of filters and so on). In line with practice in other areas of the electronic art, much of the definition of the measuring method may best be made in terms of the specification of the measuring equipment.

There are no ABU, EBU, or SMPTE standards on the subject. The UK document SEAP 8500 is not in the public domain.. However the German DIN specification 33858 1993 is available, in German text only. Certain military purchasing specifications are often quoted as substitutes for an independently established standard. Potential users not familiar with these requirements may wish to discuss with us the detail, their particular method of measurement and the hardware requirements.

Wave lengths recorded by industries with fixed speed recording equipment, e.g., computer or video, vary considerably from those recorded within multi-speed industries such as audio, instrumentation and data recording. We have had the satisfaction, however, of seeing our results checked by sophisticated users in their own measurement laboratories, and finding close agreement between us, including observations using Magnetic Force Microscopy (MFM) techniques, particularly useful for HDD hard disc data destruction confirmation

We would like to extend an offer to any other customers suitably equipped, to repeat our measurements after discussing with us the conditions under which they are made and to compare them with our own

For the well connected

We design most of our Degausser's to accept the widely used 10 amp IEC 320 connector with its appropriate power connecting plug within Europe for connection into an ordinary 16A (central Europe) or 13A (UK) power socket, for use on 230 volt harmonised supply at 50Hz (HD 472 S1), to give flexibility in the sitting of the unit.

Outside Europe, those using 60 Hz or 50 Hz supply with differing voltages from 100 to 256 volts can be catered for. The exceptions are some versions of the conveyor machine BTE 500 that may require 30A sources and the BTE 400 range that require three-phase connection. If you frequently handle or install more or less complex electronic equipment, you may find it surprising that you have some restrictions that must be observed to the input supply. Whereas the voltage can be adjusted via a transformer, frequency cannot. 50Hz Degausser's must not be connected to 60 Hz sources, and visa versa.

It is technically feasible to design Degausser's, which can accommodate, after adjustment, a range of power supplies. We offer the BTE 120 to meet this need, the simple change of power lead by the user for the differing supply source be it 60 Hz 115 volts to 50Hz 256 volt is all that is necessary. However, if you have some different circumstances to bring to our attention, we will gladly quote you for machines built to your special requirements

For Europe, test measurements are made at 230V 50Hz; other territories are tested to the published National Supply voltage & frequency.

Supply Voltage Harmonics & Circuit Breakers

One of the objectives of the EMC directive is to reduce the disturbance that electronic equipment can cause to the electrical supply, often referred to as mains borne interference.

Current Weircliffe equipment incorporates devices (circuits) to minimise these affects both to protect it from incoming disturbance and to minimise its effect on other equipment this protection is defined within EN 61000-3-2.

This can be confused with the increasing use of circuit breakers replacing fuses; these breakers also need correct selection.

Type B often used in domestic/small building protection applications being too sensitive causing nuisance tripping to the initial inrush and are NOT suitable the units require
Type C that offer short circuit response of 5 -10x normal rated current.
Are acceptable and should avoid nuisance tripping, alternatively

Type D or S although not available in all territories yet offer 13 –17 x normal rated current these are required to be fitted to the supply circuit for heavy loads, and suitable for degausser applications

One example of the generators of supply frequency harmonics is units using switch mode power supplies, which encompass most of the information technology equipment used in business and industry today. The effects are similar whether, for example, a large number of small personal computers, or one large-scale computer system is installed.

One symptom of harmonics affecting a degausser is a marked increase in line current with a possible repetitive fuse failure. This can occur at a time when equipment containing switch mode power supplies has been installed, often without the knowledge of the degausser user, not necessarily on the users

Health and Safety

Low Frequency Electromagnetic Fields

Please refer to the Health And Safety section of website

www.weircliffe.co.uk