

Conversion Factors

| Material | Velocity M/S | Factor (f) |
|-------------------|--------------|------------|
| Aluminium | 6320 | 1.068 |
| Epoxy | 2500 | 0.422 |
| Copper | 4700 | 0.794 |
| Grey Cast Iron | 4600 | 0.777 |
| Magnesium | 5770 | 0.975 |
| Nickel | 5630 | 0.951 |
| Acrylic | 2730 | 0.461 |
| Nylon (polyamide) | 2620 | 0.443 |
| Porcelain | 5600 | 0.946 |
| Glass | | |
| Quartz | 5570 | 0.941 |
| Soda-lime | 6000 | 1.014 |
| Borosilicate | 5640 | 0.953 |
| Steel | | |
| Mild | 5920 | 1.000 |
| Tool | 5870 | 0.992 |
| Stainless 302 | 5660 | 0.956 |
| Tungsten | 5460 | 0.922 |
| Monel | 5400 | 0.912 |
| Inconel | 5700 | 0.963 |
| Phosphor Bronze | 3530 | 0.596 |
| Brass (70% Cu) | 4700 | 0.794 |

BASIC TECHNIQUES

Having put the unit together as described in GETTING STARTED, **check the unit for correct calibration.**

The Thickness Meter has been set for measuring steel but can be used for other metals if you use the calculations shown in the chart.

Switch the unit ON then place the calibration block against the sensor. The display should read 15mm if set to metric or 0.590 if set to imperial. If the reading is different, do not use the unit, contact your local HSS Safe and Sure Depot for a replacement.

To make a reading, place the sensor against the surface of the test area. The display will show the thickness in the chosen mode of measurement.

If no reading can be made the display will show dashes. If this happens, move to a different area until a reading is obtained.

It may also be necessary to check the probe membrane for wear or damage. Only change the membrane if it is worn or damaged. Note that a new membrane is fitted by HSS Safe and Sure at the start of each hire.

DO NOT attempt to take a reading from any metal if its temperature is above 75 degrees C.

When in use, the test area should be coated with the surface couplant and the probe simply placed onto the test area surface. The surface should be in good general condition, free of any loose rust and also if there is a protective coating, it should be solidly adhered to the metal.

EQUIPMENT CARE

Never push the equipment beyond its design limits. If it is unsuitable for the task you are performing DO NOT USE OR RELY ON IT. Contact your local HSS Safe and Sure Depot for advice.

Keep the equipment clean - you will find this less of a chore if you clean it regularly, rather than wait until the end of the hire period.

When not in use, store the equipment somewhere clean, dry and safe from thieves.

FINISHING OFF

Switch the unit OFF then dismantle by reversing the instructions in GETTING STARTED.

Place all parts in the carry case ready for return, to your local HSS Safe and Sure Depot.

Ex Rated Thickness Meter

| | |
|-----------------------------|------------------------------------------------|
| Description | An Ultrasonic Digital Thickness Gauge Cygnus 1 |
| Ex Code | EEx ib IIC T5 |
| Area of Classification | Zone 1 & 2, gas groups IIA, IIB & IIC |
| Certification | BASEEFA Cert. Ex 84B2321 |
| Voltage (Meter) | 5Volt |
| Voltage (Charger) | 230V |
| IS Rating | ib |
| Weight | 0.9Kg |
| Conditions of certification | None |



...any comments?

If you have any suggestions to enable us to improve the information within this guide please fax your comments or write to the Product Manager at the address below
Fax: 020 8687 5001

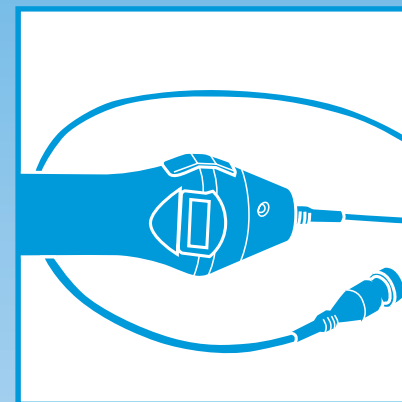
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Group Office: 25 Willow Lane, Mitcham, Surrey CR4 4TS

Web Site: <http://www.hss.com/safeandsure>

Operating & Safety Guide SS616

HSS Safe & Sure
SAFETY & SURVEY EQUIPMENT HIRE



Ex Rated Thickness Meter

An ultrasonic measuring device for all types of metals without the need to remove existing coatings.



Code 49764

GENERAL SAFETY

For advice on the safety and suitability of this equipment **contact your local HSS Safe and Sure Depot.**

There is a serious risk of personal injury if you do not **follow all instructions** laid down in this guide.

The hirer has a responsibility to **ensure that all necessary risk assessments have been completed** prior to the use of this equipment.



This equipment should only be used by an operator who has been deemed competent to do so by his/her employer.

This equipment may be used in a workplace subject to a permit to work.

It is the hirers responsibility to ensure that the equipment's technical specification meets the requirements of any such permit to work prior to starting work. For further technical information contact your local HSS Safe and Sure Depot.

This equipment should be used by an able bodied, competent adult who has read and understood these instructions. Anyone with either a temporary or permanent disability, should seek expert advice before using it.

Keep children, animals and bystanders away from the work area. Cordon off a NO GO area using either cones, barriers or tape, available for hire from your local HSS Safe and Sure Depot.

  **Never use this equipment if you are ill, feeling tired, or under the influence of alcohol or drugs.**

Wear sensible, suitably protective clothing and footwear plus any safety wear appropriate to the work in progress.

Make sure you know how to operate this equipment safely and are aware of its limitations before you use it.

Make sure that everyone is aware of what you are doing.

Ensure the work area is well lit and ventilated, if in doubt, ask about lighting and ventilation equipment at your local HSS Safe and Sure Depot.

Check the condition of the equipment before use. If it shows signs of damage or excessive wear, return it to your local HSS Safe and Sure Depot.

COSHH information sheets are available from your local HSS Safe and Sure Depot.

ELECTRICAL SAFETY

The HSS EX Rated Thickness Meter is powered by a rechargeable battery, which fits securely to the main unit.

The battery charger supplied with this unit **requires a standard 230V 13amp power supply.**

Changing and recharging of the battery must only be performed in a safe non-hazardous area.

Before the battery can be recharged it must be removed.

To remove the battery, release the grub screw with the hex key provided then unscrew the battery from the main unit by turning anti-clockwise.

To recharge, insert the chargers lead into the batteries socket. Plug the charger into the power

supply and switch the supply ON.

Press the chargers ON button, charging is automatic and progress is indicated by the chargers lamp. The charger will remove any remaining charge within the battery before recharging.

Typically, the charger takes 20 minutes to remove then 3 hours to recharge.

To **refit the battery** to the unit, firstly check that the 'O' ring is present and in good condition. Carefully line the battery with the unit's body and screw on by turning clockwise. Once fitted, secure in place by turning the grub screw finger tight.


It is part of the certification that the battery is secured by use of the grub screw.

If the charger fails, or if its power supply cable or plug becomes damaged, return it. Never try to repair it yourself.

Keep cables out of harm's way, and clear of the work area.

Extension leads should be fully unwound and loosely coiled, away from the equipment. Never run them through water, over sharp edges or where they could trip someone.

Keep the equipment dry, using electrical equipment in very damp or wet conditions can be dangerous.

 **To reduce the risk of electric shock, always use a suitable RCD** (Residual Current-Operated Device) available from your local HSS Safe and Sure Depot. Or power the equipment from a mains circuit with a built in RCD.

GETTING STARTED

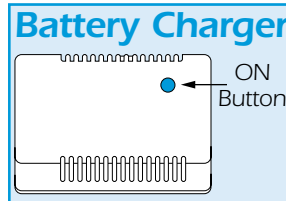
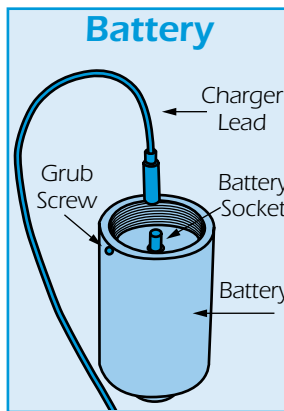
The Thickness Meter is supplied in a carry case and will need to be put together before use.

Open the case and unpack the unit, if the battery needs recharging, see ELECTRICAL SAFETY.

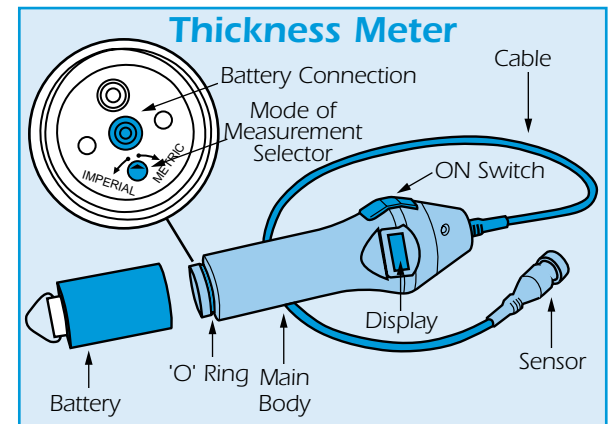
Attach the sensor cable assembly to the units main body, this attaches in the same way as the battery, make sure the 'O' ring is in good condition then simply screw in place hand-tight by turning clockwise.

To remove the sensor cable assembly, insert the torsion bar (see illustration) and un-tighten.

The unit can be preset to display either metric



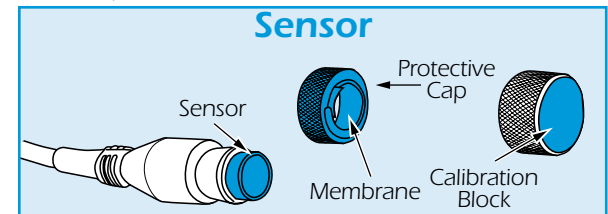
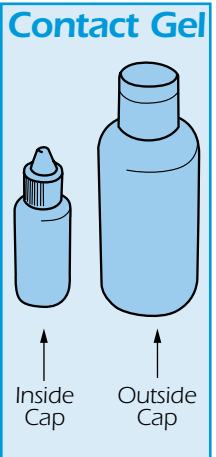
or imperial, however, **changing the mode MUST only be performed by HSS Safe and Sure staff.** For further information, contact your local HSS Safe and Sure Depot.



You can now **attach the battery** to the base of the unit in the same way. Make sure the 'O' ring is in good condition and once fitted, the grub screw is finger tight.

To enable the sensor to work correctly, the surfaces must be coated with a special contact gel called couplant. There are two types supplied with the unit, one for inside the protective cap (small container membrane couplant) and one for the test area (large container surface couplant).

Now taking care, **remove the protective cap from the sensor** (turn anti-clockwise), and **squeeze 2 or 3 drops of membrane couplant** (small container) **over the sensor surface.**



When replacing the protective cap, press the membrane onto the sensor with your finger to expel any trapped air.

It is extremely important that **the inside of the protective cap is air free and remains clean of contaminants such as grit.** Always apply the gel with clean hands. Never use the unit without a correctly fitted membrane.

All that remains is to **smear the test area with the second (large container) surface couplant.**

To switch the unit ON, move the switch forward. The unit will automatically switch itself OFF after 3 minutes of non operation.