NOTES ON CARE AND USE OF END STANDARDS (GAUGE BLOCKS AND LENGTH BARS)

(i) General care

The greatest care should be exercised in protecting the end standards and their case from damage, dust, dirt and moisture. When not in actual use, the standards should always be kept in their case and the case should be kept closed. The standards should be used as far as possible in an atmosphere free from dust and other airborne particulates. Care should be taken that the standards do not become magnetised or they will attract ferrous dust.

(ii) Preparation before use

If the standards are new or have been covered with a protective coating after being last used, this coating may be removed with an appropriate solvent. The measuring faces should finally be wiped with a clean chamois leather or soft linen cloth. This wiping should be carried out in every instance before a standard is used, irrespective of whether it has been stored, coated or merely returned temporarily to the case uncoated. A very slight (almost invisible) film of grease however will aid satisfactory wringing.

(iii) Care in use

Fingering of the lapped faces should be avoided to reduce the risk of tarnishing or rusting. Avoid forcing the gauges between probes or across surfaces that may easily scratch or damage the faces. Unnecessary handling of the standards in use should be avoided to prevent heating. If the standards have been handled for some time they should be allowed to assume the prevailing temperature of the room before being used for test purposes. This is particularly important in the case of the larger sizes. When the highest accuracy is required, a test room thermostatically controlled at the standard temperature of 20 °C becomes necessary, but for ordinary purposes, provided the standards and workpiece are of the same material, a sufficient degree of accuracy can be obtained if time is allowed to permit both to assume the prevailing temperature of the room.

(iv) Damaged gauges

Damage to the gauge can occur on both the edges and faces. Slight burrs may be removed with care by drawing an Arkansas type stone lightly across the damaged edge in a direction away from the measuring face of the standard. Any measuring face so treated should be thoroughly cleaned before wringing. A standard with a damaged measuring face (scratches, rust spotting, indents etc.) should either be returned to the manufacturer for the surface to be restored, or the gauge replaced.

(v) Care after use

End standards should never be left wrung together for any length of time. This is especially so with tungsten carbide gauges since their wrings are generally tighter than those of steel gauges. Slide the standards apart, (using a solvent if necessary to aid their separation). Do not forcefully break the wringing joint between them. Immediately after use each standard should be wiped clean and be replaced in its proper compartment in the case. It is particularly important to remove any finger marks from the measuring faces because this may encourage staining or rusting. If the standards are used infrequently they should

be coated with a suitable corrosion preventive, such as light oil, or wrapped in anti-rust paper before being put away. This also applies if the gauges are to be shipped via means of a courier or air travel. The use of thick grease such as Vaseline or similar substances is not encouraged since this can lead to a trapping of moisture on the standard and result in rusting, which may not be immediately noticed behind the layer of coating. Thick greases, such as Vaseline, are also difficult to remove completely and may lead to difficulty in wringing during use or calibration of the gauges.

The protective coating should be applied to the measuring faces with a clean piece of soft linen or tissue. A brush should not be used as this may aerate the preparation and moisture in the air bubbles so formed can cause rusting of the faces.

If protective paper is used, care must be taken that the shelf life has not expired. Always consult with the manufacturer with regards to the recommended lifetime of protective paper.

(vi) Wringing

Gauge blocks should not be held above the open case when being wrung together in case one is accidentally dropped. The gauges required should be selected and the case then closed. Before wringing gauges together, their faces should be wiped free from dust and examined for burrs, scuffs, scratches, rust etc. Damaged or rusty gauges may not wring sufficiently for them to be used or measured. Gauges in this condition should either be replaced, or returned to the manufacturer for their surfaces to be restored.

(vii) Transportation

Ensure the case locks are in good condition, or provide additional security (tape or ribbon banding) to prevent accidental opening or spilling. Consider including gloves in the packaging if customs inspection is likely. Long gauge blocks or length bars should be firmly held, ideally at the ‘Airy’ points to prevent bending/excessive movement during transit.

CAUTION – if the gauges or length bars are cold, opening the box too soon could result in the formation of condensation on the standards causing them to rust. The gauges should be left in their box (with the lid closed) in a lab overnight, to reach ambient temperature.