

## Equipment List 20230505

<b>Model</b>	<b>Equipment</b>
<b>H009</b>	<b>"Whole Shoe Flexometer" with 4 stations</b> Standards: EN ISO 24266:Met. A; TM92 Purpose: Assess the resistance of a complete shoe to the repeated flexing.
<b>H010</b>	<b>"Vamp" flexometer with 12 stations</b> Standards: EN ISO 5402-2; ISO 4643:Annex B; ISO 5423:Annex B; TM25 Purpose: Determine the propensity of upper materials to crack
<b>H010C</b>	<b>"Vamp" flexometer with 12 stations in cold chamber</b> Standards: EN ISO 5402-2; ISO 4643:Annex B; ISO 5423:Annex B; TM25 Purpose: Determine the propensity of upper materials to crack.
<b>H011</b>	<b>"BENNEWART" flexometer</b> Standards: ISO 17707; EN ISO 20344:8.6; TM161 Purpose: Determine the resistance of whole footwear soles to cut growth during repeated flexing. It is also suitable to assess the effect of surface patterns.
<b>H011C</b>	<b>"BENNEWART" flexometer in cold chamber</b> Standards: ISO 17707; EN ISO 20344:8.6; TM161 Purpose: Determine the resistance of whole footwear soles to cut growth during repeated flexing. It is also suitable to assess the effect of surface patterns.
<b>H012</b>	<b>Rigidity tester for soles</b> Standards: ISO 17707; EN ISO 20344:8.5; TM161 Purpose: Assess the rigidity of the complete footwear, to determine if it should be subjected to the "Bennewart" flexing test
<b>H013</b>	<b>"BELT" Flexing Tester</b> Standards: ISO 16177; TM133 Purpose: Determine the resistance of soles or material to crack initiation and growth due to repeated flexing.
<b>H014</b>	<b>"ROSS" flexometer</b> Standards: ISO 4643:Annex C; ISO 5423:Annex C; ASTM D1052; TM60 Purpose: Determine the resistance of polymeric materials to cut growth during repeated flexing.
<b>H014C</b>	<b>"ROSS" flexometer in cold chamber</b> Standards: ISO 4643:Annex C; ISO 5423:Annex C; ASTM D1052; TM60 Purpose: Determine the resistance of polymeric materials to cut growth during repeated flexing.
<b>H015</b>	<b>Whole shoe flexometer in water</b> Standards: TM 230; EN ISO 20344:5.19 Purpose: Assess the resistance to water penetration of complete footwear, during flexing.

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<b>H017</b>	<p><b>Elastics repeated extension tester</b>  <b>Standards:</b> EN ISO 10768; TM103  <b>Purpose:</b> Assess the resistance of elastics to repeated stretching to the limit of its useful extension.</p>
<b>H018</b>	<p><b>Velcro closing tester</b>  <b>Standards:</b> EN ISO 22776; TM 123  <b>Purpose:</b> Press the two parts of the touch and close fastener together, under controlled conditions, before peel and shear strength test.</p>
<b>H019</b>	<p><b>Velcro fatigue tester</b>  <b>Standards:</b> EN ISO 22776; TM123  <b>Purpose:</b> Simulate the use of the Velcro's by repeated closing and opening, before performing other physical tests.</p>
<b>H020</b>	<p><b>Electronic Lastometer</b>  <b>Standards:</b> EN ISO 3379; EN ISO 17693; ISO 17695; TM24  <b>Purpose:</b> Determine the lastability of uppers or complete upper assembly irrespective of the material in order to assess the suitability for the end use.</p>
<b>H020WT</b>	<p><b>Modified Lastometer, with heating source</b>  <b>Standards:</b> ISO 17232:Met.A  <b>Purpose:</b> Determine the heat resistance of patent leathers</p>
<b>H021</b>	<p><b>Zipper fatigue tester</b>  <b>Standards:</b> EN 16732; TM50  <b>Purpose:</b> Assess the resistance of slide fasteners to repeated opening and closing, under load.</p>
<b>H022/12</b>	<p><b>"Bally" flexometer with 12 stations</b>  <b>Standards:</b> ISO 32100; EN ISO 17694; EN ISO 5402-1; TM55  <b>Purpose:</b> Determining the wet or dry flex resistance of leather and finishes applied to leather. It is applicable to all types of leather below 3,0 mm in thickness.</p>
<b>H022/24</b>	<p><b>"Bally" flexometer with 20 stations</b>  <b>Standards:</b> ISO 32100; EN ISO 17694; EN ISO 5402-1; TM55  <b>Purpose:</b> Determining the wet or dry flex resistance of leather and finishes applied to leather. It is applicable to all types of leather below 3,0 mm in thickness.</p>
<b>H022C</b>	<p><b>"Bally" flexometer with 12 stations in cold chamber</b>  <b>Standards:</b> ISO 32100; EN ISO 17694; EN ISO 5402-1; TM55  <b>Purpose:</b> Determining the wet or dry flex resistance of leather and finishes applied to leather. It is applicable to all types of leather below 3,0 mm in thickness.</p>
<b>H023</b>	<p><b>Fibreboard flexometer</b>  <b>Standards:</b> TM3; TM4  <b>Purpose:</b> Assess the resistance of fibreboard material to repeated flexing</p>

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<b>Model</b>	<b>Equipment</b>
<b>H024</b>	<b>Midsole flexometer</b> Standards: EN ISO 20344:5.12; ISO 22568:3-4 Purpose: Assess the resistance of midsole materials to repeated flexing
<b>H027</b>	<b>Heat resistance tester</b> Standards: EN ISO 20344:8.9 Purpose: Assess the ability of the finish of shoemaking materials to withstand the heat involved in various shoemaking operations.
<b>H028</b>	<b>Heat insulation tester</b> Standards: EN ISO 20344:5.15; ISO 20877:6.2; EN 15090 Purpose: Assess the heat insulating properties of the sole complex of protective footwear.
<b>H029</b>	<b>Cold insulation tester</b> Standards: EN ISO 20344:5.16; ISO 20877:6.1 Purpose: Assess the cold insulating properties of the sole complex of protective footwear.
<b>H030</b>	<b>Longitudinal/torsional stiffness of insole back parts and shanks</b> Standards: ISO 18896; TM58; TM59; TM88 Purpose: Assess longitudinal and torsional stiffness of shanks and insole back parts
<b>H031</b>	<b>Longitudinal/torsional stiffness of complete footwear</b> Standards: TM194; TM256 Purpose: Assess longitudinal and torsional stiffness of complete footwear
<b>H032/4</b>	<b>"MAESER" waterproofness tester with 4 stations</b> Standards: ASTM D-2099; EN ISO 5403-2; TM34 Purpose: Determining the resistance of a material to water penetration on flexing,
<b>H033/4</b>	<b>"Bally" penetrometer with 4 stations</b> Standards: EN ISO 5403-1; EN ISO 20344:6.13; ISO 17702; TM171; Purpose: Determining the dynamic water resistance of leather.
<b>H033/6</b>	<b>"Bally" penetrometer with 6 stations</b> Standards: EN ISO 5403-1; EN ISO 20344:6.13; ISO 17702; TM171; Purpose: Determining the dynamic water resistance of leather.
<b>H033S</b>	<b>Stiffness tester for leathers</b> Standards: EN ISO 5403-1; EN ISO 17702; TM171 Purpose: Determining the stiffness of leathers as preparation to "Bally" test.
<b>H034</b>	<b>Shock absorption tester</b> Standards: TM142 Purpose: Evaluate the shock absorption properties of materials or assemblies of footwear bottom.
<b>H035</b>	<b>Dynamic compression tester</b> Standards: TM159 Purpose: Evaluate the changes in dimensions of a material after a prolonged period of dynamic compression.

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<b>Model</b>	<b>Equipment</b>
<b>H036</b>	<b>Toe and Heel Adhesion Tester</b> Standards: TM404 Purpose: Determine the resistance of the bond, between upper and sole
<b>H037</b>	<b>"Mattia" Flexometer, with 12 stations</b> Standards: EN ISO 20344:6.5.2 Purpose: Assessing the resistance of coated fabrics to damage by repeated flexing and determination of flexing cracking of rubber, vulcanized or thermoplastic
<b>H040</b>	<b>Perspiration tester</b> Standards: ISO 11641; ISO 11642; ISO 105-E01; ISO 105-E04 Purpose: Determine the resistance of the colour of the leathers to the human sweat.
<b>H043</b>	<b>Laboratory Milling Machine</b> Standards: ISO 4044 Purpose: Milling materials to be used in chemical tests
<b>H045</b>	<b>Laboratory press</b> Standards: TM402 Purpose: press sample assemblies during bonding process
<b>H046</b>	<b>Thickness measuring gauge for leather and soles material</b> Standards: ISO 2589; ISO 2286-3; ISO 23529:9.1 Purpose: Determining thickness of the leather and sole materials
<b>H046/1</b>	<b>Thickness measuring gauge for leather</b> Standards: ISO 2589; ISO 23529:9.1 Purpose: Determining thickness of the leather and sole materials
<b>H046/2</b>	<b>Thickness measuring gauge for soles material</b> Standards: ISO 2286-3; ISO 23529:9.1 Purpose: Determining thickness of the leather and sole materials
<b>H046/3</b>	<b>Thickness measuring gauge for textile material</b> Standards: EN ISO 5084 Purpose: Determining thickness of textile materials
<b>H048</b>	<b>Radiant heat tester</b> Standards: EN ISO 6942 Purpose: Assess the resistance of personal protective equipments against a radiant heat source.
<b>H050</b>	<b>Water vapour permeability tester</b> Standards: EN ISO 20344:6.6; EN ISO 14268; ISO 17699; EN ISO 21420; TM172 Purpose: Determining the "breathability" of the leather and non-leather upper materials
<b>H052</b>	<b>Water vapour absorption tester</b> Standards: EN ISO 17229; EN ISO 20344:6.7; TM172 Purpose: Determining the coefficient of water vapour on leather and non-leather upper materials

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<b>Model</b>	<b>Equipment</b>
<b>H053</b>	<b>Water vapour absorption tester for gloves</b> Standards: EN ISO 21420 Purpose: Determining the coefficient of water vapour on leather and non-leather used on gloves.
<b>H054</b>	<b>Dynamic water-resistance tester</b> Standards: EN ISO 20344:7.2; EN ISO 22649; EN ISO 5404; TM220 Purpose: Determining the dynamic water-resistance of sole leather.
<b>H055</b>	<b>Leakproofness tester</b> Standards: EN ISO 20344:5.7; EN ISO 374-2 Purpose: Assess the leakproofness of whole footwear and gloves
<b>H057</b>	<b>Laboratorial Reactivator</b> Standards: None specific Purpose: Used in specimens bonding process.
<b>H061</b>	<b>"TABER" Abrasion Tester</b> Standards: ISO 17076-1; ISO 5470-1; ASTM D-3884 Purpose: Determining the abrasion resistance of several materials
<b>H062/4</b>	<b>"Martindale" abrasion machine, with four stations</b> Standards: EN ISO 20344:6.12; EN ISO 17704; ISO 12947-1; EN ISO 5470-2; EN ISO 12945-2; TM31 Purpose: Determining the resistance of uppers, linings and insoles irrespective of the material, to wet and dry abrasion.
<b>H062/9</b>	<b>"Martindale" Abrasion Tester, with nine stations</b> Standards: EN ISO 20344:6.12; EN ISO 17704; ISO 12947-1; EN ISO 5470-2; EN ISO 12945-2; TM31 Purpose: Determining the resistance of uppers, linings and insoles irrespective of the material, to wet and dry abrasion.
<b>H063</b>	<b>Wear and corrosion apparatus</b> Standards: EN 12472 Purpose: Accelerated wear and corrosion to be used for detection of nickel
<b>H064</b>	<b>"Veslic" Rub Fastness Tester</b> Standards: EN ISO 20344:7.3; EN ISO 11640; EN ISO 17700:Met.A; ISO 20868; TM173 Purpose: Determining the behavior of the surface of a leather on rubbing with a felt
<b>H064/2</b>	<b>"Veslic" rub fastness tester, with two stations</b> Standards: EN ISO 20344:7.3; EN ISO 11640; EN ISO 17700:Met.A; ISO 20868; TM173 Purpose: Determining the behavior of the surface of a leather on rubbing with a felt
<b>H065</b>	<b>Rotating rub fastness tester</b> Standards: EN ISO 17700:Met.B; TM8; TM14 Purpose: Assess the degree of damage (marring) and transfer of a material 'surface colour during mild dry or wet abrasion.

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<b>Model</b>	<b>Equipment</b>
<b>H066</b>	<p><b>Crockmeter Tester, hand driven</b>  <b>Standards:</b> ISO 17700:Met.C; ISO 20433; ISO 105-X12; TM167  <b>Purpose:</b> Determine colour fastness to wet and dry rubbing.</p>
<b>H067/6</b>	<p><b>Lace to lace abrasion tester with 6 stations</b>  <b>Standards:</b> EN ISO 22774; TM154  <b>Purpose:</b> Determine the abrasion resistance of a lace to repeated rubbing against a similar lace, a eyelet or a lace carrier.</p>
<b>H068</b>	<p><b>Lace to eyelet abrasion tester with 6 stations</b>  <b>Standards:</b> BS 5131:3.6; TM93  <b>Purpose:</b> Determine the abrasion resistance of a lace to repeated rubbing against a standard eyelet. Could be also assessed the abrasive action of a lace over the eyelet.</p>
<b>H070</b>	<p><b>Chainsaw cutting tester</b>  <b>Standards:</b> ISO 11393-1; ISO 11393-3  <b>Purpose:</b> Assess the resistance to cutting by chainsaw of personal protective devices</p>
<b>H071</b>	<p><b>Circular blade cutting resistance tester</b>  <b>Standards:</b> EN ISO 20344:5.23; ISO 23388:6.2; EN 388:6.2  <b>Purpose:</b> Assess the resistance of upper and glove materials to be cut by blade</p>
<b>H072</b>	<p><b>Sole abrasion tester</b>  <b>Standards:</b> ISO 4649; ISO 20871; ASTM D5963:A/C; TM174  <b>Purpose:</b> Assess the abrasion resistance of a polymeric material normally used in sole footwear.</p>
<b>H072R</b>	<p><b>Sole abrasion tester with rotating sample holder</b>  <b>Standards:</b> ISO 4649; ISO 20871; ASTM D5963:B/D; TM174  <b>Purpose:</b> Assess the abrasion resistance of a polymeric material normally used in sole footwear. Test could be performed with rotating or fixed sample holder</p>
<b>H073</b>	<p><b>Blade Cutting Resistance Tester</b>  <b>Standards:</b> EN 388:6.3; ISO 23388:6.3; ISO 13997  <b>Purpose:</b> Assess the resistance of textile and glove materials to be cut by blade</p>
<b>H076</b>	<p><b>Leather Grain Crack Tester</b>  <b>Standards:</b> ISO 3378; TM48  <b>Purpose:</b> Determine the propensity of the grain leather to crack during bending</p>
<b>H077</b>	<p><b>Electrical conductivity tester</b>  <b>Standards:</b> EN ISO 20344:5.13  <b>Purpose:</b> Measure of electrical resistance of conductive footwear.</p>
<b>H080</b>	<p><b>Slip Resistance Tester</b>  <b>Standards:</b> EN ISO 13287; TM144; ASTM F2913  <b>Purpose:</b> Determining the coefficient of friction between footwear outsoles and flooring surfaces.</p>

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<b>H081</b>	<b>Toe Caps Impact Tester</b> Standards: EN ISO 20344:5.4; EN ISO 22568-1; EN ISO 22568-2; ASTM F2412; CSA Z195 Purpose: Assess impact resistance of toes caps for safety and protective footwear
<b>H081/1</b>	<b>Thickness measuring gauge for modeling clay cylinders</b> Standards: EN ISO 20344:5.4.1.4 Purpose: Measure modeling clay cylinders before and after impact or compression test
<b>H082</b>	<b>Ankle shock absorption tester</b> Standards: EN ISO 20344:5.17 Purpose: Assess shock absorption properties of ankle protective materials and assemblies.
<b>H084</b>	<b>Heel fatigue tester</b> Standards: EN ISO 19956; TM21 Purpose: Assess the ability of ladies' heels shoes to withstand the repeated small impacts of normal walking.
<b>H085</b>	<b>Heel impact tester</b> Standards: EN ISO 19953; TM20 Purpose: Assess the resistance of ladies' heels shoes to occasional heavy impacts during wear.
<b>H090</b>	<b>Combustion chamber</b> Standards: ISO 3795; FMVSS 302 Purpose: Determination of horizontal rate of flame spread of materials and components used in interiors of cars, trucks and other vehicles.
<b>HED05</b>	<b>Electronic Dynamometer, 5KN capacity</b>
<b>HED10</b>	<b>Electronic Dynamometer, 10KN capacity</b>
<b>HED20</b>	<b>Electronic Dynamometer, 20KN capacity</b>
<b>HED-EXT</b>	<b>Extensometer, for dynamometers model HED10 and HED20</b>

**Dynamometers:** There are available different types of grips, load cells of different capacities and all the specific accessories for all tests.

**If you cannot find the equipment you need here, please contact us.**

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