Equipment List_2025-1

MODEL	EQUIPMENT
H009	***"Whole Shoe Flexometer" with 4 stations*** **Standards:** ISO 24266:Met. A **Purpose:** Assess the resistance of a complete shoe to the repeated flexing.
H010	***"Vamp" flexometer with 12 stations*** **Standards:** EN ISO 5402-2; ISO 4643; ISO 5423; SATRA TM25 **Purpose:** Determine the propensity of upper materials to crack
H010C	***"Vamp" flexometer with 12 stations in cold chamber*** **Standards:** EN ISO 22288; EN ISO 5402-2; ISO 4643; ISO 5423; SATRA TM25 **Purpose:** Determine the propensity of upper materials to crack.
H011	***"BENNEWART" flexometer*** **Standards:** ISO 17707; EN ISO 20344:8.4 ; SATRA 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.
H011C	***"BENNEWART" flexometer in cold chamber*** **Standards:** ISO 17707; EN ISO 20344:8.4; SATRA 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.
H012	***Rigidity tester for soles*** **Standards:** ISO 17707; EN ISO 20344:8.4; SATRA TM161 **Purpose:** Assess the rigidity of the complete footwear, to determine if it should be subjected to the "Bennewart" flexing test
H013	***"BELT" Flexing Tester*** **Standards:** ISO 16177; SATRA TM133 **Purpose:** Determine the resistance of soles or material to crack initiation and growth due to repeated flexing.
H014	***"ROSS" flexometer*** **Standards:** ISO 4643; ISO 5423; ASTM D1052; BS 5131-2.1 SATRA TM60 **Purpose:** Determine the resistance of polymeric materials to cut growth during repeated flexing.
H014C	***"ROSS" flexometer in cold chamber*** **Standards:** ISO 4643; ISO 5423; ASTM D1052; BS 5131-2.1; SATRA TM60 **Purpose:** Determine the resistance of polymeric materials to cut growth during repeated flexing.
H015	***Whole shoe flexometer in water*** **Standards**: SATRA TM 230; EN ISO 20344:5.19 **Purpose:** Assess the resistance to water penetration of complete footwear, during flexing.
H017	***Elastics repeated extension tester*** **Standards**: EN ISO 10768; SATRA TM103 **Purpose:** Assess the resistance of elastics to repeated stretching to the limit of its useful extension.

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MODEL	EQUIPMENT
H018	***Velcro closing tester*** **Standards**: EN ISO 22776 **Purpose:** Press the two parts of the touch and close fastener together, under controlled conditions, before peel and shear strength test.
H019	***Velcro fatigue tester*** **Standards**: EN ISO 22776 **Purpose:** Simulate the use of the velcros by repeated closing and opening, before performing other physical tests.
H020	***Electronic Lastometer*** **Standards:** EN ISO 3379; EN ISO 17693; ISO 17695 **Purpose:** Determine the lastability of uppers or complete upper assembly irrespective of the material in order to assess the suitability for the end use.
H020WT	***Modified Lastometer, with heating source*** **Standards:** ISO 17232 **Purpose:** Determine the heat resistance of patent leathers
H021	***Zipper fatigue tester*** **Standards**: EN 16732; SATRA TM50 **Purpose:** Assess the resistance of slide fasteners to repeated opening and closing, under load.
H022/12	***"Bally" flexometer with 12 stations*** **Standards:** EN ISO 17694; EN ISO 5402-1; SATRA TM55 **Purpose:** 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.
H022/24	***"Bally" flexometer with 24 stations*** **Standards:** EN ISO 17694; EN ISO 5402-1; SATRA TM55 **Purpose:** 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.
H022C	***"Bally" flexometer with 12 stations in cold chamber*** **Standards:** EN ISO 17694; EN ISO 5402-1; SATRA TM55 **Purpose:** 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.
H023	***Fibreboard flexometer*** **Standards:** BS 5131-4.2; SATRA TM3; TM4 **Purpose:** Assess the resistance of fibreboard material to repeated flexing
H024	***Midsole flexometer*** **Standards:** EN ISO 20344:5.9; ISO 22568:3-4 **Purpose:** Assess the resistance of midsole materials to repeated flexing
H027	***Hot contact resistance tester*** **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.

MODEL	EQUIPMENT
H028	***Heat insulation tester*** **Standards:** EN ISO 20344:5.12; ISO 20877; EN 15090 **Purpose:** Assess the heat insulating properties of the sole complex of protective footwear.
H029	***Cold insulation tester*** **Standards:** EN ISO 20344:5.13; ISO 20877 **Purpose:** Assess the cold insulating properties of the sole complex of protective footwear.
H030	***Longitudinal/torsional stiffness of insole back parts and shanks*** **Standards:** EN 12959; ISO 18896; SATRA TM58; TM59; TM88 **Purpose:** Assess longitudinal and torsional stiffness of shanks and insole back parts
H031	***Longitudinal/torsional stiffness of complete footwear*** **Standards:** SATRA TM194; TM256 **Purpose:** Assess longitudinal and torsional stiffness of complete footwear
H032	***"MAESER" waterproofness tester with 4 stations*** **Standards:** ASTM D-2099; EN ISO 5403-2; SATRA TM34 **Purpose:** Determining the resistance of a material to water penetration on flexing,
H033/4	***"Bally" penetrometer with 4 stations*** **Standards:** EN ISO 5403-1; EN ISO 20344:6.13; ISO 17702; SATRA TM171; **Purpose:** Determining the dynamic water resistance of leather.
H033/6	***"Bally" penetrometer with 6 stations*** **Standards:** EN ISO 5403-1; EN ISO 20344:6.13; ISO 17702; SATRA TM171; **Purpose:** Determining the dynamic water resistance of leather.
H033S	***Stiffness tester for leathers*** **Standards:** EN ISO 5403-1; EN ISO 17702; SATRA TM171 **Purpose:** Determining the stiffness of leathers as preparation to "Bally" test.
H034	***Shock absorption tester*** **Standards:** ISO 25149; SATRA TM142 and pre-prepared for ASTM F1976-24 **Purpose:** Evaluate the shock absorption properties of materials or assemblies of footwear bottom.
H035	***Dynamic compression tester*** **Standards:** SATRA TM156 **Purpose:** Evaluate the changes in dimensions of a material after a prolonged period of dynamic compression.
H036	***Toe and Heel Adhesion Tester*** **Standards:** SATRA TM404 **Purpose:** Determine the resistance of the bond, between upper and sole
H037	***"Mattia" Flexometer, with 12 stations*** **Standards:** ISO 132; ISO 7854-Met. A; 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
H040	***Perspiration tester*** **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.

MODEL	EQUIPMENT
H043	***Laboratory Milling Machine*** **Standards:** ISO 4044 **Purpose:** Milling materials to be used in chemical tests
H044	***Laboratory Shaker, with 8 containers*** **Standards:** ISO 4045; ISO 4098; TM329 **Purpose:** Agitate up materials in chemical solutions
H045	***Laboratory press*** **Standards:** SATRA TM402 **Purpose:** press sample assemblies during bonding process
H046/1	***Thickness measuring gauge for leather*** **Standards:** ISO 2589 **Purpose:** Determining thickness of the leather and sole materials
H046/2	***Thickness measuring gauge for sole materials*** **Standards:** ISO 2286-3; ISO 23529:method A **Purpose:** Determining thickness of the leather and sole materials
H046/3	***Thickness measuring gauge for textile materials*** **Standards:** EN ISO 5084 **Purpose:** Determining thickness of textile materials
H046/4	***Thickness measuring gauge for cellular materials*** **Standards:** EN ISO 5084 **Purpose:** Determining thickness of textile materials
H048	***Radiant heat tester*** **Standards:** EN ISO 6942 **Purpose:** Assess the resistance of personal protective equipments against a radiant heat source.
H050	***Water vapour permeability tester, w/ 6 bottles*** **Standards:** EN ISO 20344:6.6; EN ISO 14268; ISO 17699; EN 13515; EN 420; SATRA TM172 **Purpose:** Determining the “breathability” of the leather and non-leather upper materials
H050/2	***Water vapour permeability tester, w/ 12 bottles*** **Standards:** EN ISO 20344:6.6; EN ISO 14268; ISO 17699; EN 13515; EN 420; SATRA TM172 **Purpose:** Determining the “breathability” of the leather and non-leather upper materials
H052	***Water vapour absorption tester*** **Standards:** EN ISO 17229; EN 13515; EN ISO 20344:6.7; SATRA TM172 **Purpose:** Determining the coefficient of water vapour on leather and non-leather upper materials
H053	***Water vapour absorption tester for gloves*** **Standards:** EN 420 **Purpose:** Determining the coefficient of water vapour on leather and non-leather used on gloves.
H054	***Dynamic water-resistance tester*** **Standards:** EN ISO 20344:7.2; ISO 22649; EN 12746; EN ISO 5404; **Purpose:** Determining the dynamic water-resistance of sole leather.

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H055	***Leakproofness tester*** **Standards:** EN ISO 20344:5.7; EN 374-2 **Purpose:** Assess the leakproofness of whole footwear and gloves
H057	***Laboratorial Reactivator*** **Standards:** None specific **Purpose:** Used in specimens bonding process.
H061	***"TABER" Abrasion Tester*** **Standards:** ISO 17076-1; ISO 5470-1; ASTM D-3884 Purpose: Assessing the abrasive wear resistance of coated fabrics
H062/4	***"Martindale" abrasion machine, with four stations*** **Standards:** EN ISO 20344:6.12; EN 13520; EN ISO 17704; ISO 12947-1; EN ISO 5470-2; EN 530; EN ISO 12945-2; SATRA TM31 **Purpose:** Determining the resistance of uppers, linings and insocks irrespective of the material, to wet and dry abrasion.
H062/9	***"Martindale" Abrasion Tester, with nine stations*** **Standards:** EN ISO 20344:6.12; EN 13520; EN ISO 17704; ISO 12947-1; EN ISO 5470-2; EN 530; EN ISO 12945-2; SATRA TM31 **Purpose:** Determining the resistance of uppers, linings and insocks irrespective of the material, to wet and dry abrasion.
H063	***Wear and corrosion apparatus*** **Standards:** EN 12472:2005+A1:2008 **Purpose:** Accelerated wear and corrosion to be used for detection of nickel
H064	***"Veslic" Rub Fastness Tester*** **Standards:** EN ISO 20344:7.3; EN ISO 11640; EN 12747; EN ISO 17700; ISO 20868; SATRA TM173 **Purpose:** Determining the behavior of the surface of a leather on rubbing with a felt
H064/2	***"Veslic" rub fastness tester, with two stations*** **Standards:** EN ISO 20344:7.3; EN ISO 11640; EN 12747; EN ISO 17700:Met.A; ISO 20868**;** SATRA TM173 **Purpose:** Determining the behavior of the surface of a leather on rubbing with a felt
H064H	***Ironing Element, for "Veslic"*** **Standards:** IUF 450 **Purpose:** Assess the behavior of the surface of a leather on rubbing w/ an ironing element.
H065	***Rotating rub fastness tester*** **Standards:** EN ISO 17700:Met. B; SATRA TM8; TM14 **Purpose:** Assess the degree of damage (marring) and transfer of a material 'surface colour during mild dry or wet abrasion.
H066	***Crockmeter Tester, hand driven*** **Standards:** ISO 20433; ISO 105-X12; SATRA TM167 **Purpose:** Determine colour fastness to wet and dry rubbing.
H066M	***Crockmeter tester, motorized*** **Standards:** ISO 20433; ISO 105-X12; SATRA TM167 **Purpose:** Determine colour fastness to wet and dry rubbing.

MODEL	EQUIPMENT
H067	***Lace to lace abrasion tester with 6 stations*** **Standards:** EN ISO 22774; SATRA TM154 **Purpose:** Determine the abrasion resistance of a lace to repeated rubbing against a similar lace, a eyelet or a lace carrier.
H068	***Lace to eyelet abrasion tester with 6 stations*** **Standards:** BS 5131:3.6; SATRA TM93 **Purpose:** 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.
H070	***Chainsaw cutting tester*** **Standards:** ISO 11393-1; ISO 11393-3 **Purpose:** Assess the resistance to cutting by chainsaw of personal protective devices
H071	***Circular blade cutting resistance tester*** **Standards:** EN ISO 20344:6.14; EN 388:6.2 **Purpose:** Assess the resistance of upper and glove materials to be cut by blade
H072	***Sole abrasion tester*** **Standards:** EN 12770; ISO 4649; ISO 20871; ASTM D5963:A/C; SATRA TM174 **Purpose:** Assess the abrasion resistance of a polymeric material normally used in sole footwear.
H072R	***Sole abrasion tester with rotating sample holder*** **Standards:** EN 12770; ISO 4649; ISO 20871; ASTM D5963:B/D; SATRA TM174 **Purpose:** Assess the abrasion resistance of a polymeric material normally used in sole footwear. Test could be performed with rotating or fixed sample holder
H073	***Blade Cutting Resistance Tester*** **Standards:** EN 388:6.3; ISO 13997 **Purpose:** Assess the resistance of textile and glove materials to be cut by blade
H076	***Leather Grain Crack Tester*** **Standards:** ISO 3378; SATRA TM48 **Purpose:** Determine the propensity of the grain leather to crack during bending
H077	***Electrical conductivity tester*** **Standards:** EN ISO 20344:5.10 **Purpose:** Measure of electrical resistance of conductive footwear.
H080	***Slip Resistance Tester*** **Standards:** EN ISO 13287; SATRA TM144; ASTM F2913-11 **Purpose:** Determining the coefficient of friction between footwear outsoles and flooring surfaces.
H080_ICE	***Ice Slip Apparatus*** **Standards:** SATRA TM144 **Purpose:** Perform slip resistance test on ice surface, using slip resistance equipment.
H081	***Toe Caps Impact Tester*** **Standards:** EN ISO 20344:5.4; EN ISO 22568-1; EN ISO 22568-2; ASTM F2412; CAN/CSA Z195 **Purpose:** Assess impact resistance of toes caps for safety and protective footwear

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H081/1	***Thickness measuring gauge for modeling clay cylinders*** **Standards:** EN ISO 20344:5.4.1.4 **Purpose:** Measure modeling clay cylinders before and after impact or compression test
H081/2	***Vacuum equipment*** **Standards:** EN ISO 20344:5.16 **Purpose:** Prepare the wax test forms for metatarsal test
H081/3	***Metatarsal Device*** **Standards:** EN ISO 20344:5.16 **Purpose:** Perform metatarsal impact test
H082	***Ankle shock absorption tester*** **Standards:** EN ISO 20344:5.17 **Purpose:** Assess shock absorption properties of ankle protective materials and assemblies. **NOTE:** with appropriated tools this equipment is suitable to perform tests in impactor protectors according to EN 1621-1; EN 1621-2; EN 1621-3 and others
H084	***Heel fatigue tester*** **Standards:** EN ISO 19956; SATRA TM21 **Purpose:** Assess the ability of ladies' heels shoes to withstand the repeated small impacts of normal walking.
H085	***Heel impact tester*** **Standards:** EN ISO 19953; SATRA TM20 **Purpose:** Assess resistance of ladies' heels shoes to occasional heavy impacts during wear.
H090	***Combustion chamber*** **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.
HED05	***Electronic Dynamometer with 5KN capacity***
HED10	***Electronic Dynamometer with 10KN capacity***
HED20	***Electronic Dynamometer with 20KN capacity***
HED-EXT	***Extensometer, for dynamometers HED10 and HED20***
HED-LC	***Extra Load Cells (500N; 1KN; 5KN; 10KN; 20KN)***
HED-**	***Grips and devices, on request***

For any standard that is not mentioned in these equipments, please contact us to clarify

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