JEFFOPTICS

Product Introduction

杰福科技产品介绍

北京杰福科技有限公司

Beijing Jeffoptics Company Limited

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一、表面应力仪 Surface Stress Meter

JF-1 系列表面应力仪 JF-1 Series Surface Stress Meter

- JF-1E 玻璃表面应力仪采用光波导原理来测量半钢化玻璃、物理强化玻璃、钢化玻璃的表面应力状况。本产品符合标准 GB 15763.2《建筑安全玻璃 第 2 部分 钢化玻璃 》、 GB/T 18144 《玻璃应力试验方法》、ASTM C1279 《退火玻璃、半钢化玻璃、钢化玻璃的表面应力和边缘应力无损光弹测量试验方法》、 ASTM C1048 《热处理和全钢化平板玻璃标准规范》。

  JF-1E Glass Surface Stress Meter is applied for measuring the surface stress of thermally toughened glass and heat-strengthened glass on the tin side. The special edition can work on Borofloat Glass. It applied with the code and standard ASTM C 1048, ASTM C 1279, EN 12150-2, EN 1863-2.



JF-2 系列表面应力仪 JF-2 Series Surface Stress Meter

- JF-2E 玻璃表面应力仪用来测量物理钢化玻璃和化学钢化玻璃的表面应力。符合标准和规范: ASTM C 1422。

  JF-2E Glass Surface Stress Meter is applied for measuring the surface stress of chemically tempered glass and thermally tempered glass. JF-2E is the Portable Version with PDA. It complied with the code and standard: ASTM C 1422.

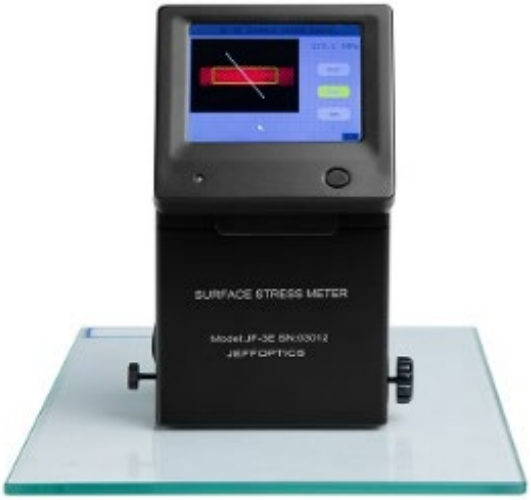


JF-3 系列表面应力仪 JF-3 Series Surface Stress Meter

- JF-3E 玻璃表面应力仪使用激光光源来测量物理钢化玻璃，热强化玻璃，退火玻璃，浮法玻璃的表面应力。JF-3E 带有 PDA，也可以连接电脑软件使用。标准范围：ASTM C 1048,ASTM C 1279, EN 12150-2, EN 1863-2。

  JF-3E Glass Surface Stress Meter is applied for measuring the surface stress of thermally toughened glass, heat-strengthened glass,

annealed glass, and float glass. It applied with the code and standard: ASTM C 1048,ASTM C 1279, EN 12150-2, EN 1863-2；



- 曲面棱镜版——JF-3H 玻璃表面应力仪可测量半径为 200mm 的表面的玻璃，如汽车玻璃，建筑玻璃，太阳能玻璃等。定制版可测量：高硼硅玻璃、5%TT 低透过率玻璃、PG10 和 VG10 低透过率玻璃、带有 AR 涂层的有色光学玻璃。

  The curved version, JF-3H Glass Surface Stress Meter, can measure surfaces with a radius of 200mm, such as Automotive glass, Architectural glass, and Solar glass. All the automotive glass, such as Windshield Glass, Side Window Glass, Sunroof Glass, and Back window Glass. Special applications: Borofloat Glass； 5%TT low transmittance glass；Low transmittance glass: PG10, VG10；Selenium Cadmium Sulfide Optical Glass with AR Coating；



- JF-3B 玻璃表面应力仪是用来测量钢化玻璃以及半钢化玻璃的表面应力。JF-3B 为半自动设备，并配有 PDA，既能显示动态图像也能显示静态图像。操作人员可用 PDA 来识别条纹角度，当条纹角度被识别时，应力值就会显示出来。此设备降低了操作的复杂性，大大减少了操作人员的疲劳度。标准范围：ASTM C 1048, ASTM C 1279, EN 12150-2, EN 1863-2。

  JF-3B Glass Surface Stress Meter is applied for measuring the surface stress of thermally toughened glass, heat-strengthened glass on the tin side. JF-3B is compact version of JF-3E. It is a Semi-automatic device. The meter is equipped with a PDA show living image as well as still image. PDA is used to assist operator to recognize the fringe angle. As the fringe angle is recognized, the stress value is shown. Angle-Stress table is integrated in PDA software. Compared with equipment using eyepiece, operation complexity is reduced and operator fatigue can be greatly reduced.

  Code and standard: ASTM C 1048, ASTM C 1279, EN12150-2,

EN1863-2



JF-4 表面应力仪 JF-4 Surface Stress Meter

JF-4 系列玻璃表面应力仪用来测量物理钢化玻璃和化学钢化玻璃的表面应力。也可以根据客户要求定制。产品特点：适用于双离子交换玻璃；显示应力分布情况；自动继续测量；自动继续记录；输出系统报告。

JF-4 Series Glass Surface Stress Meter is applied for chemically tempered glass and thermally tempered glass surface stress measurement. Customized according to requirement. Features: Suitable for double ion exchange glass; Show stress distribution; Automatically continue measurement; Automatically continue recording in csv file; Report export.

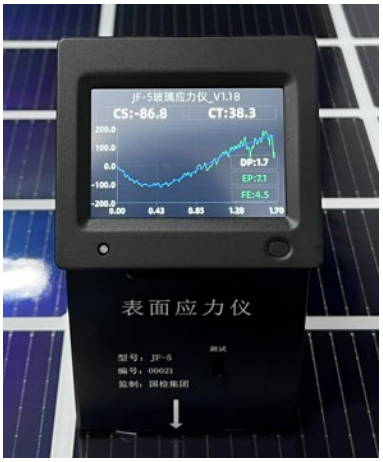


JF-5 表面应力仪 JF-5 Surface Stress Meter

JF-5 玻璃表面应力仪使用光弹性散射法测量玻璃应力分布状况。可以测量光伏超白压花玻璃、硼硅玻璃、钠钙硅玻璃等内部和表面的应力分布状况。可以测量平面玻璃或者曲面玻璃。

JF-5 glass surface stress meter uses photoelasticity scattered light method to measure the stress distribution of glass. It can measure the stress distribution inside and on the surface of patterned glass, borosilicate glass, sodium silicate glass etc.

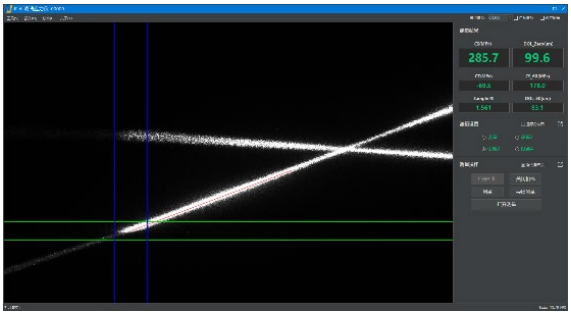


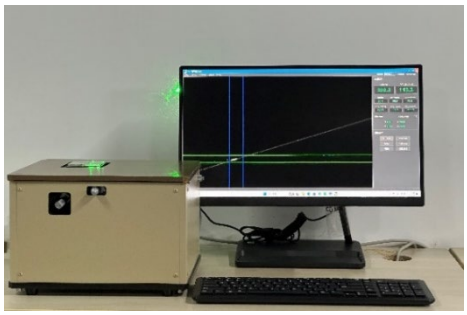


JF-6 表面应力仪 JF-6 Surface Stress Meter

JF-6 应力仪使用激光散射法（散乱光光弹性法）测量化学钢化玻璃应力分布状况。可以测量锂钠离子交换的化学强化玻璃的应力分布.也可以测量微晶玻璃的应力分布。

JF-6 Glass Stress Meter uses scattered light photoelasticity to measure the stress distribution of chemically tempered glass. It can measure the stress distribution of chemically strengthened glass with Li+ to Na+ ion exchange.





二、边缘应力仪 Edge Stress Meter

SGS-2 边缘应力仪 SGS-2 Edge Stress Meter

本仪器用来检查平板玻璃的应力状况。仪器的工作原理是：用偏振光干涉原理来测量玻璃因存在应力而产生的双折射效应。

Method：Senarmont Compensation

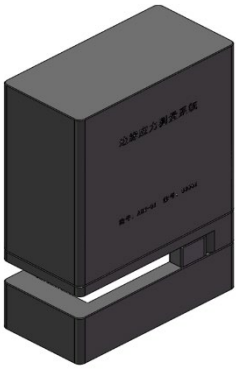


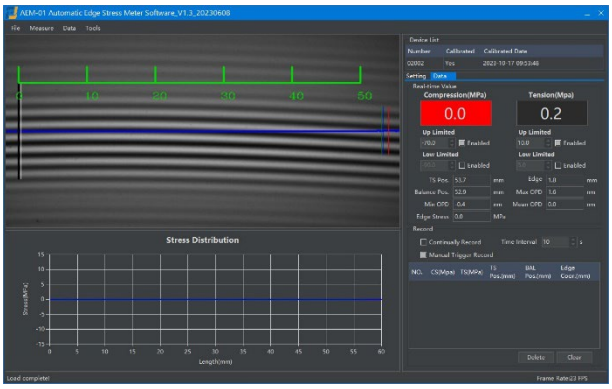
边缘应力测量系统 AEM-01 Automatic Edge Stress Meter

AEM-01 边缘应力测量系统使用光弹原理测量玻璃的边缘压应力和张应力。可以测量退火玻璃、半钢化玻璃和钢化玻璃的边缘应力状态。样品包括高透过率和低透过率的玻璃。应用场景包括建筑玻璃、汽车的风窗玻璃、侧窗玻璃、天窗玻璃和背窗玻璃，也可以测量太阳能压花玻璃的边缘应力状态。

The AEM-01 Automatic Edge Stress Meter adopts the photoelastic principle to measure the edge stress of glass according to ASTM C 1279-13. The meter can be applied to laminated glass, annealed glass, heat-strengthened glass, and tempered glass. The glass that can be

measured is from clear glass to tint glass (vg10, pg10). Painted glass after being polished with sandpaper can also be measured. The meter can measure Architectural glass, Automotive glass (windshield glass, sidelites, backlites and sunroof glass), and solar patterned glass.





边缘应力测量系统 AEM-02 Automatic Edge Stress Meter

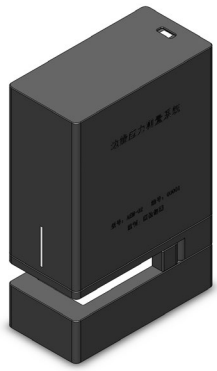
AEM-02 边缘应力测量系统使用可变光楔测量玻璃的边缘压应力和张应力。产品符合 ASTM C 1279-13 标准。可以测量夹胶玻璃、退火玻璃、半钢化玻璃和钢化玻璃的边缘应力状态。样品包括高透过率和低透过率的玻璃。应用场景包括建筑玻璃、汽车的风窗玻璃、侧窗玻璃、天窗玻璃和背窗玻璃*，也可以测量太阳能压花玻璃的边缘应力状态。尤其适合视场光强不均匀的深色 PVB 夹胶玻璃。

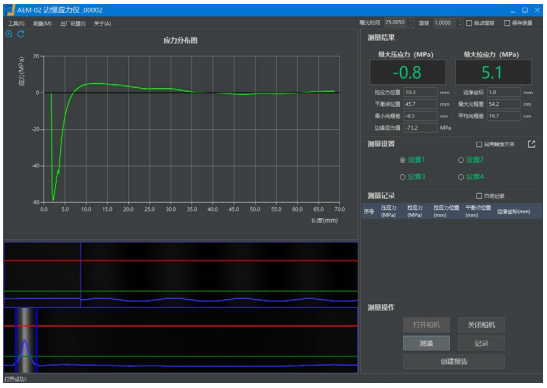
The AEM-02 Automatic Edge Stress Meter measures edge stress of glass with Nematic Liquid Crystal Variable Retarders according to ASTM C 1279-13. The meter can be applied to laminated glass, annealed glass, heat-strengthened glass and tempered glass. The

glass that can be measured is from clear glass to tinted glass (vg10, pg10). Painted glass after polished with sandpaper can also be measured. The meter can measure Architectural glass, Automotive glass (windshield, sidelite, backlite and sunroof) and solar patterned glass. Especially suitable for laminated glass with dark PVB with non-uniform light field.

本边缘应力测量系统一次完成应力分布检测，计算速度快，结果准确稳定，可以满足工厂生产中快速全面检测要求。体积小，结构紧凑，易用，也适合质控、现场抽检等要求。

The automatic edge stress meter can measure the stress distribution (from compression to tension) at one time and the results are accurate and stable all the transmittance range. It can meet the requirements of rapid and comprehensive measurement and test in factory production. With feature of small size, compact structure and easy to use, the meter is also suitable for quality control, spot check and other requirements.





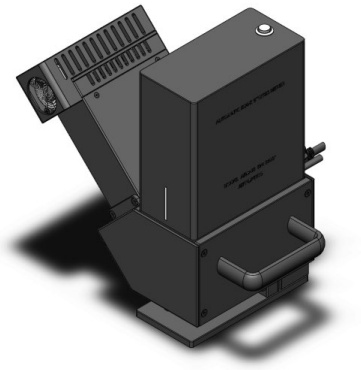
反射式边缘应力测量系统 AEM-03 Automatic Reflective Edge Stress Meter

AEM-03 边缘应力测量系统使用光弹原理测量玻璃的边缘压应力和张应力。可以用来测量汽车的风窗玻璃、侧窗玻璃、天窗玻璃和背窗玻璃。

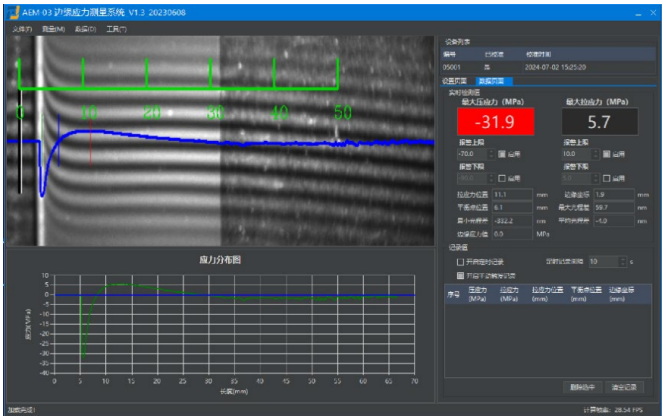
The AEM-03 Automatic Reflective Edge Stress Meter adopts photo elastic principle to measure edge stress of glass with paint. The meter can be used to measure the windshield, side window glass, sunroof glass, and back window glass of automobiles.

本边缘应力测量系统一次完成应力分布检测，计算速度快，结果准确稳定，可以满足工厂生产中快速全面检测要求。体积小，结构紧凑，易用，也适合质控、现场抽检等要求。

The automatic edge stress meter can measure the stress distribution (from compression to tension) at one time with the speed about 12Hz and the results are accurate and stable. It can meet the requirements of rapid and comprehensive measurement and test in factory production. With feature of small size, compact structure and easy to use, the meter is also suitable for quality control, spot check and other requirements.



Probe



PC Software Interface

三、副像偏离系统 Secondary Image Separation Test System

激光光源副像偏离测量系统 Secondary Image Separation Test System

激光光源副像偏离测量系统是用来自动测量汽车前风窗的副像偏离。可以测量指定位置偏离角度和方位角，主像副像光强比，生成检测报告。

SIS-02 Secondary Image Separation Test System is dedicated to measure angular separation of the secondary image from the primary image on windshield in dedicated position in compliance with ECE R43.





实验室副像偏离检测系统 The Secondary Image Separation Test System –Lab version

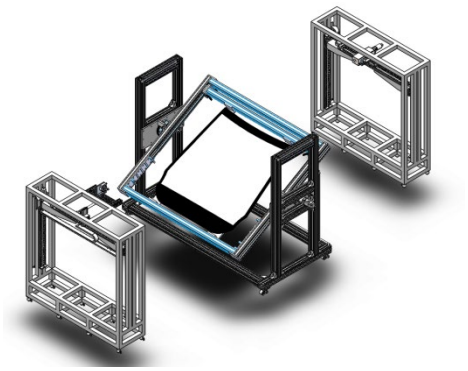
实验室副像偏离检测系统为独立测量系统，实现玻璃的摄像头区域和其他区域副像偏离检测工作。

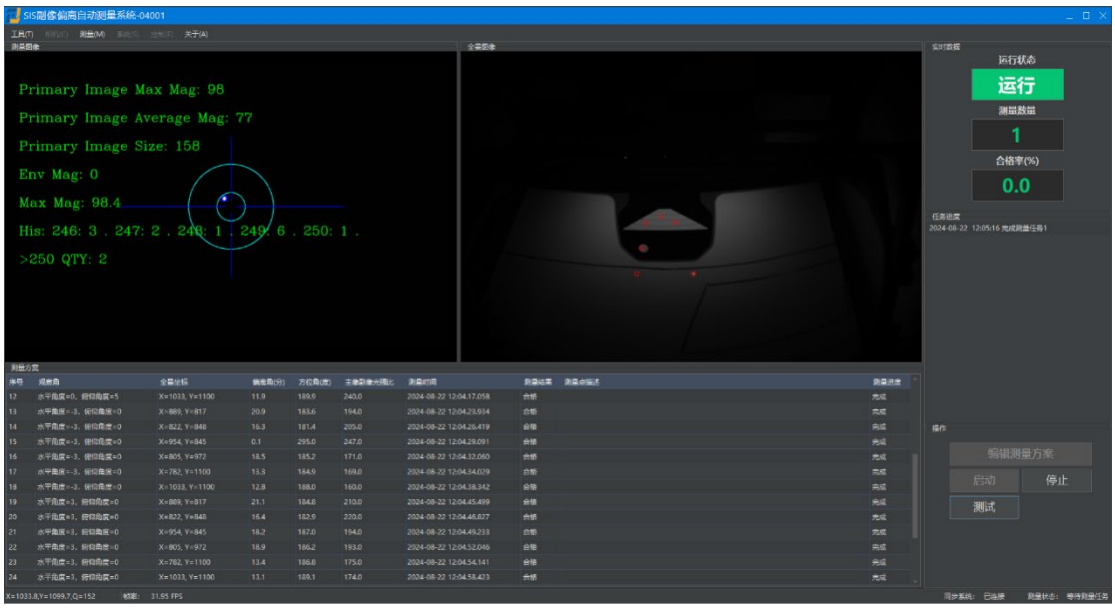
The Secondary Image Separation Test System is an independent measurement system that executes the image separation detection in

the camera area and other areas of the glass.

副像偏离检测系统根据测试计划完成对指定安装角样品上多个检测点不同观察角度的副像偏离值检测，检测结果超限报警，检测结果记录、打印、存储以及导出。

The Secondary Image Separation Test System-Lab version can test the secondary image separation value of dedicated points at different viewing angles on the specified installation angle with vision system guidance. The system can show exceed-limit alarm, record, print, store, and export the test result.



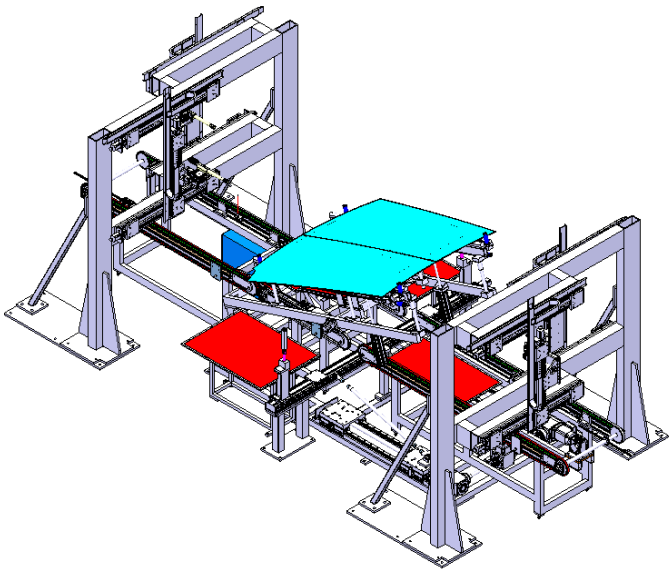


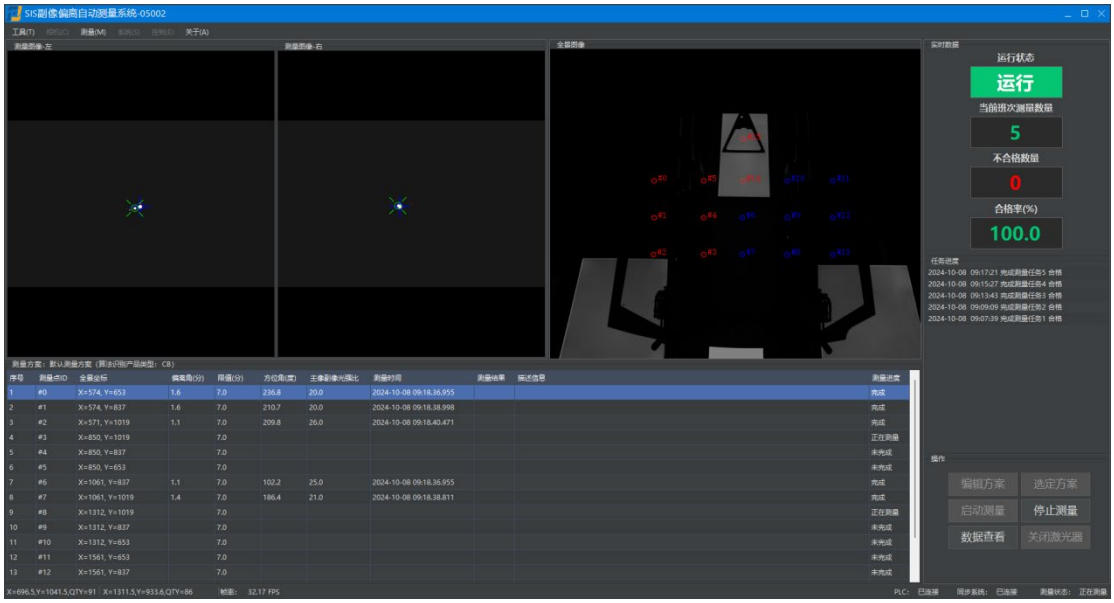
在线副像偏离检测系统 The Secondary Image Separation Test System –on line version

在线副像偏离检测系统连接在汽车风挡玻璃产线上，用以检测汽车风挡玻璃的副像偏离角度。检测系统根据测试计划完成对指定安装角样品上多个检测点的副像偏离值检测，检测结果超限报警，检测结果记录、打印、存储以及导出。

The Secondary Image Separation Test System online version integrated in the automotive windshield production line is an independent measurement system that executes the image separation detection in the camera area and other areas of the glass.

The Secondary Image Separation Test System-Lab version can test the secondary image separation value of dedicated points on the specified installation angle with vision system guidance. The system can show exceed-limit alarm, record, print, store, and export the test result.





四、其他设备 Other Equipment

波纹量规 Roller Wave Guage

The gauge is designed for measuring roller wave and edge-lift (edge curl) in flat glass according to EN 1863 and EN 12150. The length of the gauge base is 16-inch (406 mm) with Composite structure of Aluminum alloy and Delrin (POM). The handhold curve of Aluminum alloy brings convenience to operation and the POM bottom gives protection to glass surface soft coating.

