

Next Generation WST-20

全自动智能图像整纬装置



- 响应速度快
- 测量精度高
- 可靠性高

Fast response speed / High measurement accuracy / High reliability

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HET Optoelectronic
Technology

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通过智能图像处理整纬系统， 使纺织品质量更好，生产效率更高

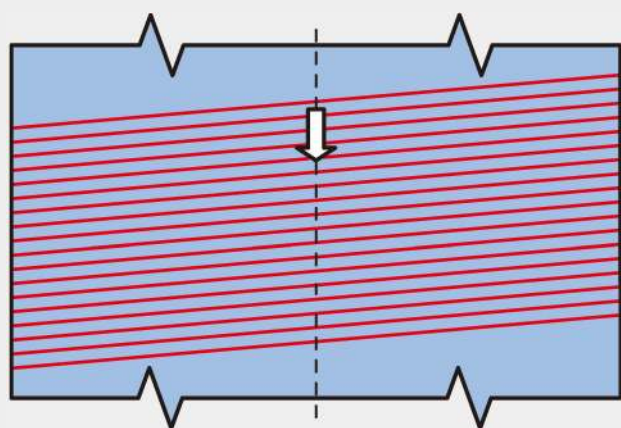
THROUGH AN INTELLIGENT IMAGE PROCESSING SYSTEM,
IMPROVE THE QUALITY OF TEXTILES AND INCREASE PRODUCTION EFFICIENCY

制造商和纺织品生产设备用户如今所面对的要求越来越高：生产速度应进一步加快，同时必须保证质量，在机器出现废品及停止运转期间，必须将损失减小到最低限度。通常情况下纺织品织造会经过不同的生产过程。在各种湿法工艺中，主要因转运纬纱会产生翘曲。而在诸如烘干、热定型、涂覆或印花等工艺流程之前，都需要进行修正。

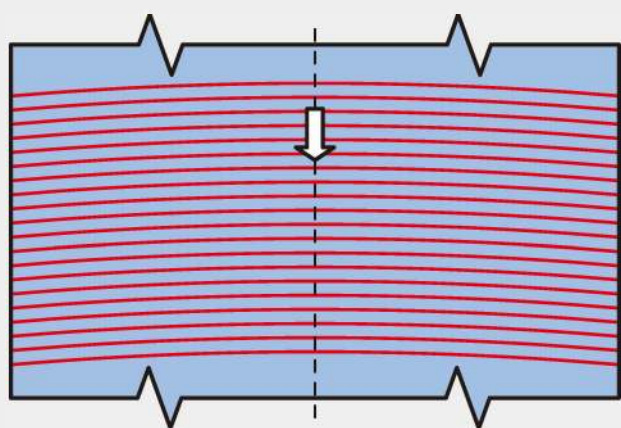
和田光电的智能整纬系统能自动探测并矫正织物的纬斜和纬弯，智能相机能快速探测出及分析机织物、针织物的纬纱形状，而不受织物颜色或印花图案和绒毛及织物毛圈的影响。

Manufacturers and textile production equipment users are now facing increasingly high requirements: production speed should be further accelerated, while quality must be ensured, and losses must be minimized during machine waste and downtime. Usually, textile fabrics go through different production processes. In various wet processes, warping is mainly caused by the transportation of weft yarns. Before processes such as drying, heat setting, coating, or printing, corrections need to be made.

Hetian Optoelectronics' intelligent weft system can automatically detect and correct the warp and weft bending of fabrics. The intelligent camera can quickly detect and analyze the weft shape of woven and knitted fabrics, without being affected by fabric color or printing patterns, fluff, and fabric loops.



纬斜翘曲



纬纱弯弧翘曲

控制原理

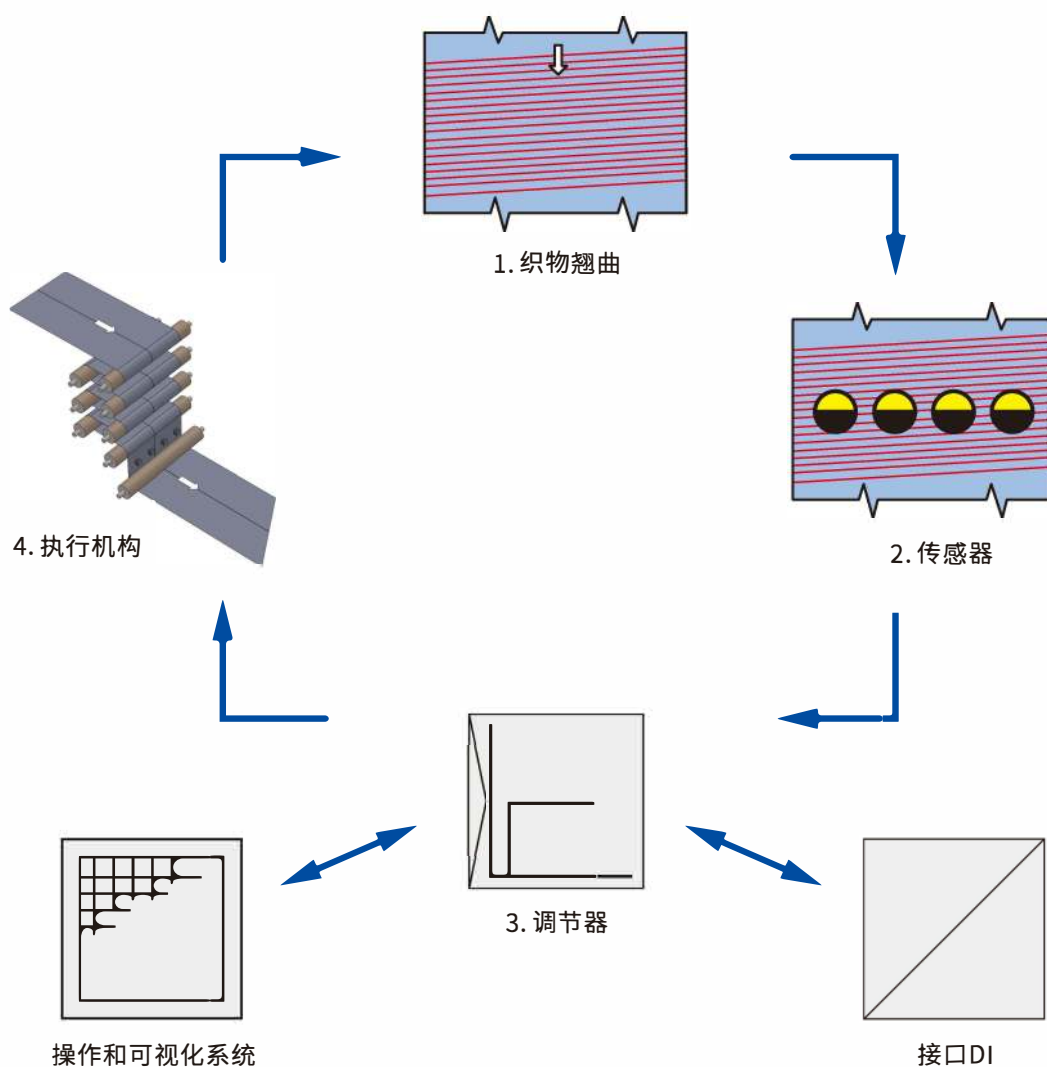
CONTROL PRINCIPLE

全自动智能图像整纬装置的每一个调节系统都是以典型的控制回路为基础。扩展的功能模块可解决较复杂的任务。

- ① 起始点就是纺织品织物上纬纱当前的翘曲；
- ② 矩阵摄像机无接触检测织物纬纱变形；
- ③ 控制器将实际值与额定值进行比较，并向执行机构发出相应的纠偏信号；
- ④ 执行机构纠正纬斜翘曲或纬纱弯弧翘曲。

Each adjustment system of the fully automatic intelligent image warping device is based on a typical control circuit. Extended functional modules can solve more complex tasks.

- ① The starting point is the current warp of the weft yarn on the textile fabric
- ② Matrix camera non-contact detection of fabric weft deformation
- ③ The controller compares the actual value with the rated value and sends corresponding correction signals to the actuator
- ④ The actuator corrects the warp of the weft or the warp of the weft arc



传感器

SENSOR

用于侦测织物组织结构的矩阵摄像机

- + 高分辨率智能摄像机用于全面可靠识别所有梭织物和针织物
- + 通过FFT(Fast Fourier Transformation 快速傅立叶变换)执行织物组织结构的精确识别
- + 环形排列的红外线LED光源用于入射光照明和背景光照射
- + 集成式分析
- + 每个织物宽度由4-8部摄像机快速识别纬纱弯弧翘曲及纬斜翘曲

Matrix camera used for detecting fabric tissue structure

- + High resolution intelligent camera for comprehensive and reliable recognition of all woven and knitted fabrics;
- + Accurate recognition of fabric tissue structure through FFT (Fast Fourier Transform);
- + Circular arrangement of infrared LED light sources for incident light illumination and background light illumination;
- + Integrated analysis;
- + Each fabric width is quickly identified by 4-8 cameras for warp and weft bending, as well as weft diagonal warping.



豹纹布



大提花布



单色麻布



竖条布



磨毛布



针织布



斜纹布



黑色布



绒布



竖条弹力布



塑料化纤布



格子斜纹布

技术数据 Technical Data

矩阵CCD摄像机	
传感器芯片	COMS
可视范围	40×30mm
分辨率	1440×1080像素(VGA)
变焦	数码
纱线数量	10-100纱线(针脚)/cm
扫描速率	最多10帧/秒
传感器与织物表面之间的距离	60mm
环境温度	10-50℃
防护等级	IP65

调节及控制单元

ADJUSTMENT AND CONTROL UNIT

+ 智能摄像机

- 摄像机从每个位置确定精确尺寸和翘曲类型
- 摄像机根据织物宽度自动定位

+ 计算机

- 所有的摄像机信号将会在一台PC上进行分析
- 计算出纬纱弯弧形翘曲及纬斜翘曲的校正信号

+ 控制系统

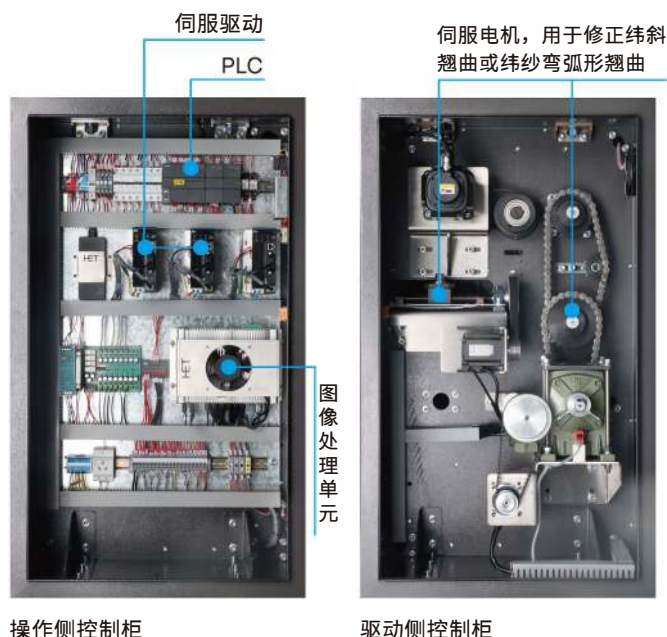
- 将纬纱弯弧形翘曲及纬斜翘曲辊定位

+ 接口

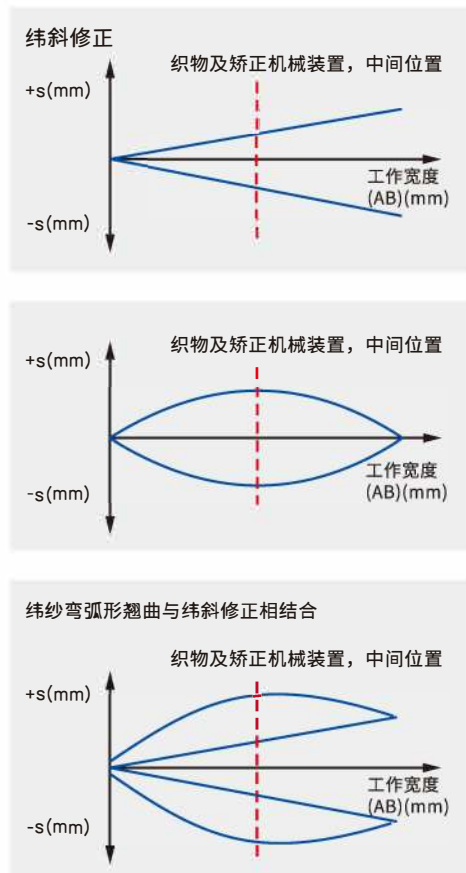
- 远程服务以太网

+ 警报功能

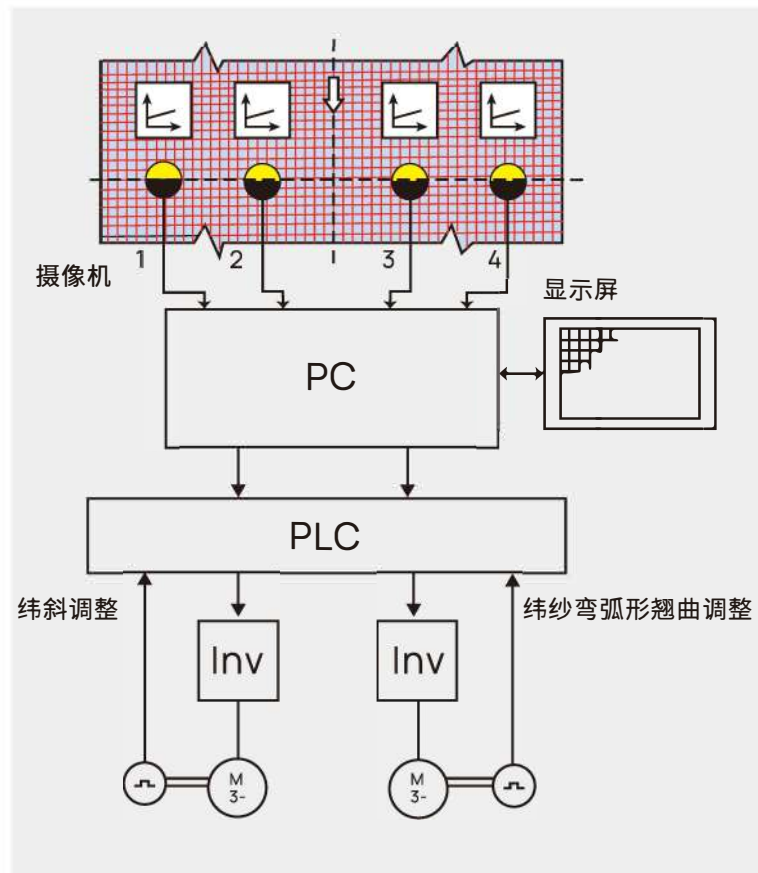
- 超过设定的纬纱弯弧形翘曲及纬斜翘曲极限值时，即发送警报信号



修正方式



接线框图



操作和可视化系统

OPERATION AND VISUALIZATION SYSTEM

- + 操作
- + 操作简便的12(15)英寸触摸屏操作系统
- + 翘曲过程的可视化系统+翘曲百分比预设+直方图+管理员及服务
- + Operation+Easy to operate 12 (15) inch touchscreen operating system
- + Visualization system for warping process+preset warping percentage
- + histogram+scheme management+operator, administrator, and service



整纬系统功能

WEAVING SYSTEM FUNCTION

功能

传感器连续检测在规定位置上垂直于织物的翘曲。分析逻辑确定是否存在纬斜翘曲或纬纱弯弧形翘曲。位置调节器将翘曲实际值与额定值进行比较，并控制纬斜翘曲和纬纱弯弧形翘曲的执行机构。

应用范围

- + 拉幅和定型的入布段
- + 印花机入布段
- + 涂覆设备
- + 蒸呢机
- + 热接合机

应用

原则上在生产过程之前必须立即安装好整纬系统。梭织物和针织物必须始终居中以足够且恒定的拉力输送给整纬系统。针对针织物，另需预备好一台修整装置。

APPLICATION SCOPE

- + Pulling and shaping the fabric section
- + steaming machine
- + Printing machine feeding section
- + hot bonding machine
- + Coating equipment

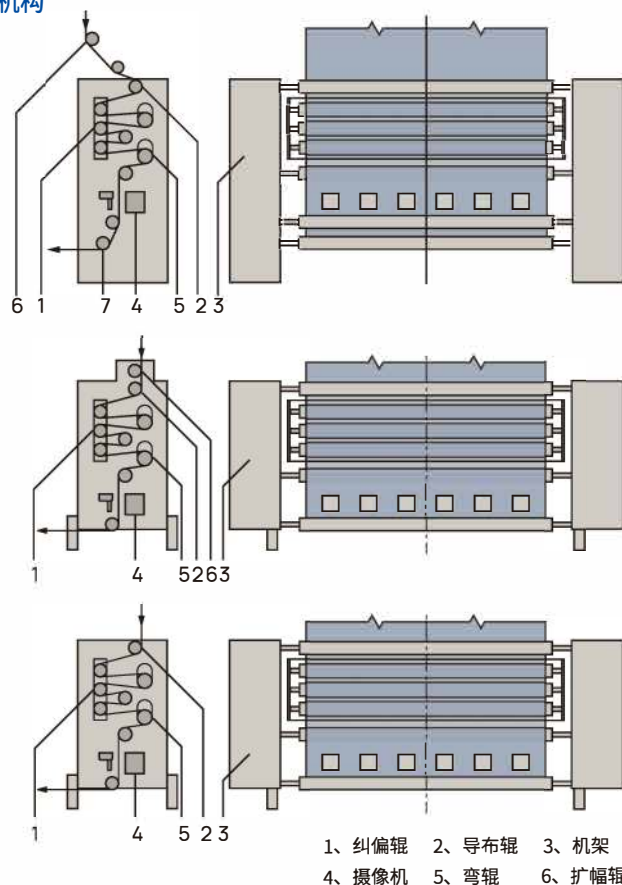
APPLICATION

In principle, the weft system must be installed immediately before the production process. Woven and knitted fabrics must always be centered to provide sufficient and constant tensile stress to the weft system. For knitted fabrics, an additional trimming device needs to be prepared.

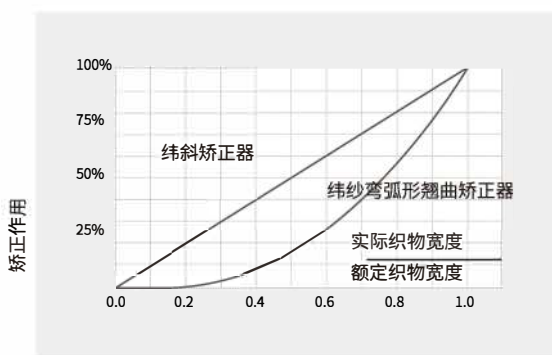
FUNCTION

The sensor continuously detects warping perpendicular to the fabric at a specified position. Analyze the logic to determine whether there is warp or warp in the warp direction. The position adjuster compares the actual value of warp with the rated value and controls the actuator for weft diagonal warp and weft curved warp.

校正机构

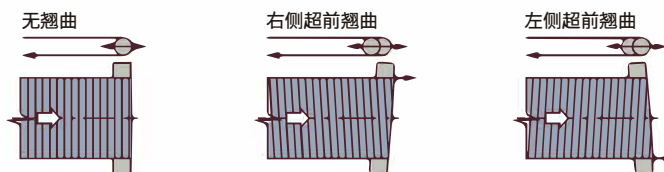


校正曲线图

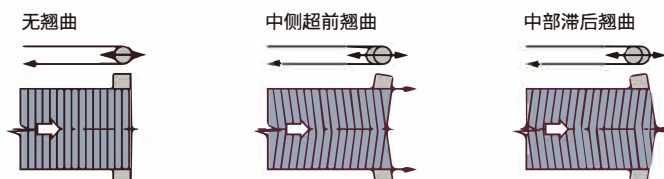


斜辊和弧形辊的校正作用

校正纬斜翘曲



修正纬纱弯弧形翘曲



WST-20型机织布智能图像整纬系统

WST-20 INTELLIGENT IMAGE WEAVING SYSTEM FOR WOVEN FABRIC

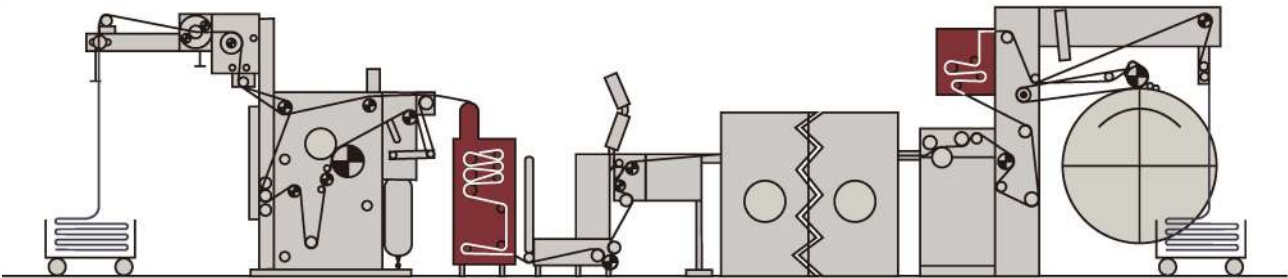
机织布智能图像整纬系统具有以下特点

- + 机织布整纬系统适用于绝大多数织物包含地毯、棉布及工业纺织品
- + 4部最多至8部摄像机用于安全采集纬纱弯弧形翘曲及纬斜翘曲情况
- + 摄像机自动定位到当前的织物宽度
- + 2个或3个弧形辊及3个纬斜调节辊用于执行修正
- + 带交流伺服驱动器的伺服电机用于控制纬纱弯弧形翘曲及纬斜翘曲辊



The intelligent image knitting system for woven fabrics has the following characteristics

- + The weaving system is suitable for the vast majority of fabrics, including carpets, cotton fabrics, and industrial textiles
- + 4 up to 8 cameras are used for safe collection of warp yarn bending, arc-shaped warping, and diagonal warping
- + The camera automatically locates the current fabric width
- + Two or three arc-shaped rollers and three weft adjustment rollers are used to perform correction
- + A servo motor with an AC servo driver is used to control the warp roll of weft yarn in curved and inclined shapes



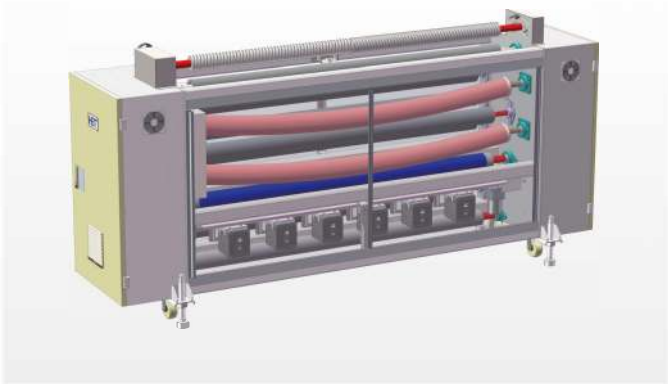
技术数据 Technical Data

WST-20型整纬系统	
传感器	4-8部矩阵摄像机
角分辨率	0.1度
矫正机械装置	
斜纬修正调节行程	±400mm,在使用3个斜辊的情况下
纬纱弯弧翘曲修正调节行程	±300mm,在使用2个弧形辊的情况下
辊子直径	100mm
织物类别	各种机织物、地毯、棉布、技术纺织品
织物宽度	900-3600mm
织物运行速度	5-100m/min之间
织物张力	50-1000N
环境温度	10-50℃
工作电压	3×380V50/60HZ
电流消耗	7A
功率消耗	3-4KW
防护等级	IP54

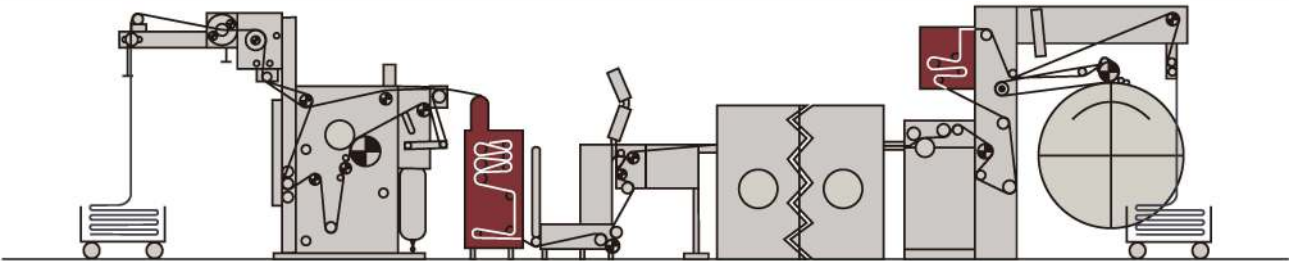
WST-20K型轻薄布智能图像整纬系统

WST-20K LIGHTWEIGHT FABRIC INTELLIGENT IMAGE WEAVING SYSTEM

- + 本系统用于修正定型机、预缩处理设备、涂覆设备、热接合机上的轻薄面料
- + 4部最多至8部摄像机用于安全采集纬纱弯弧形翘曲及纬斜翘曲情况
- + 摄像机自动定位到当前的织物宽度
- + 每个弧形辊和纬斜调节辊均用于修正
- + 对于弹力织物，可以选用张力补偿调节装置，用于使驱动的弧形辊同步
- + 带伺服驱动器的伺服电机用于调整纬纱弯弧形翘曲及纬斜翘曲



- + This system is used to correct thin and light fabrics on shaping machines, pre shrinking treatment equipment, coating equipment, and thermal bonding machines
- + 4 up to 8 cameras are used for safe collection of warp yarn bending, arc-shaped warping, and diagonal warping
- + The camera automatically locates the current fabric width
- + Each arc-shaped roller and weft angle adjustment roller is used for correction
- + For elastic fabrics, a tension compensation adjustment device can be used to synchronize the driven arc-shaped rollers
- + A servo motor with a servo driver is used to adjust the warp roll of weft yarn for curved and diagonal bending



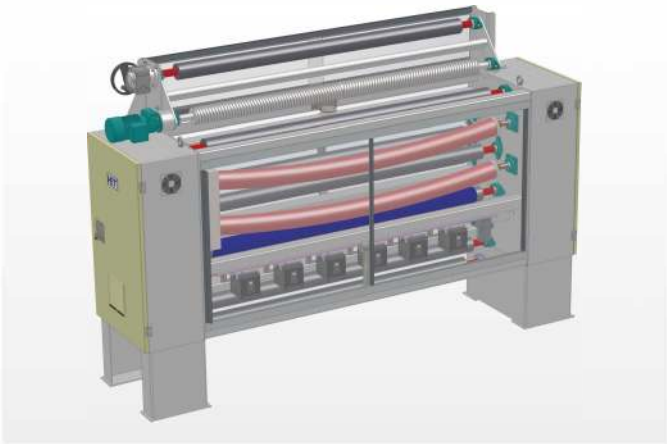
技术数据 Technical Data

WST-20K型整纬系统	
传感器	4-8部矩阵摄像机
角分辨率	0.1度
矫正机械装置	
斜纬修正调节行距	±400mm,在使用3个斜辊的情况下
纬纱弯弧翘曲修正调节行程	±300mm,在使用2个弧形辊的情况下
辊子直径	100mm(铝辊)
织物类别	轻薄梭织物和针织物
织物宽度	900-3000mm
织物运行速度	5-100m/min之间
织物张力	20-1000N
环境温度	10-50℃
工作电压	3×380V50/60HZ
电流消耗	7-10A
功率消耗	3-4KW
防护等级	IP54

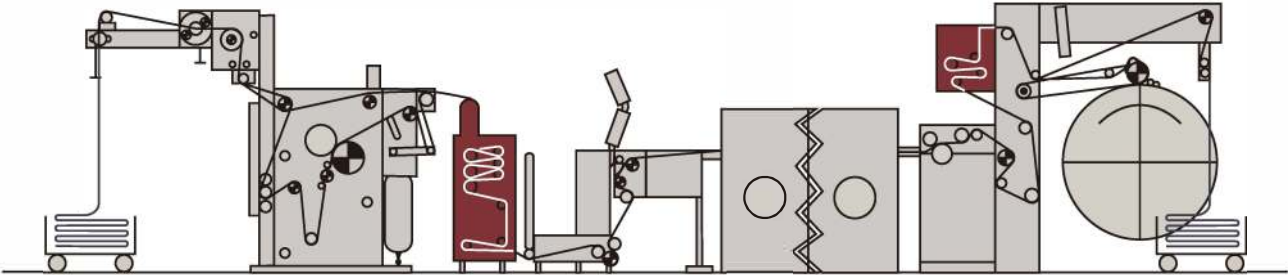
WST-20G型针织布智能图像整纬系统

WST-20G INTELLIGENT IMAGE WEAVING SYSTEM FOR KNITTED FABRIC

- + 紧凑型梭织物和针织物整纬系统
- + 4部最多至8部摄像机用于全面可靠采集纬纱弯弧形翘曲及纬斜翘曲情况
- + 摄像机自动定位到当前的织物宽度
- + 2个或3个弧形辊及3个纬斜调节辊用于执行修正
- + 对于针织物，可以选用张力补偿调节装置，用于使驱动的弧形辊同步
- + 带伺服驱动器的伺服电机用于调整纬纱弯弧形翘曲及纬斜翘曲辊
- + 可以选用扩幅辊用于无折皱地织物展平

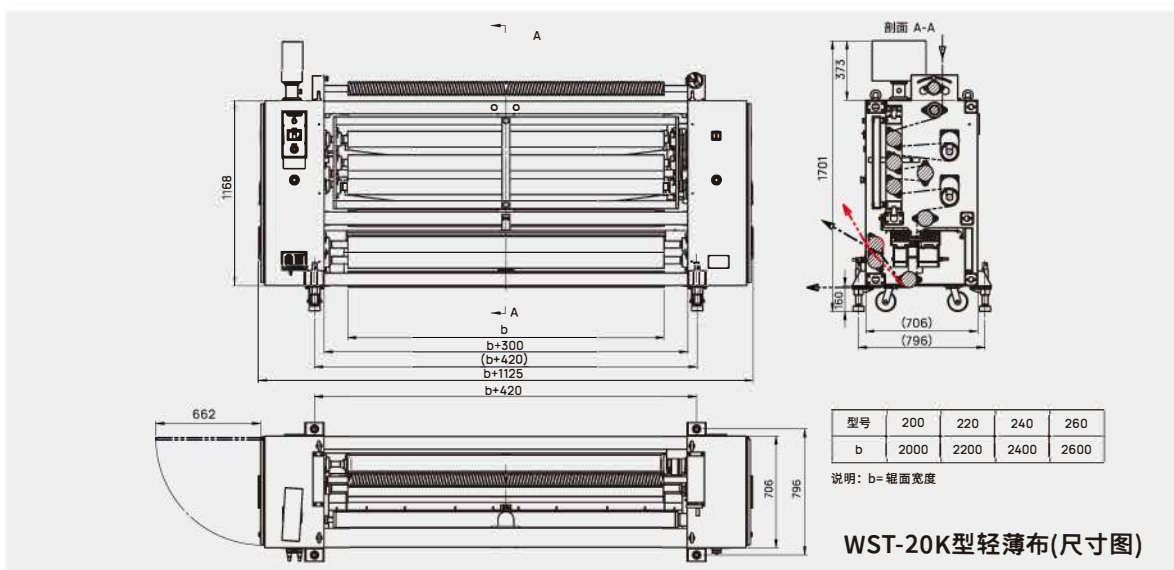
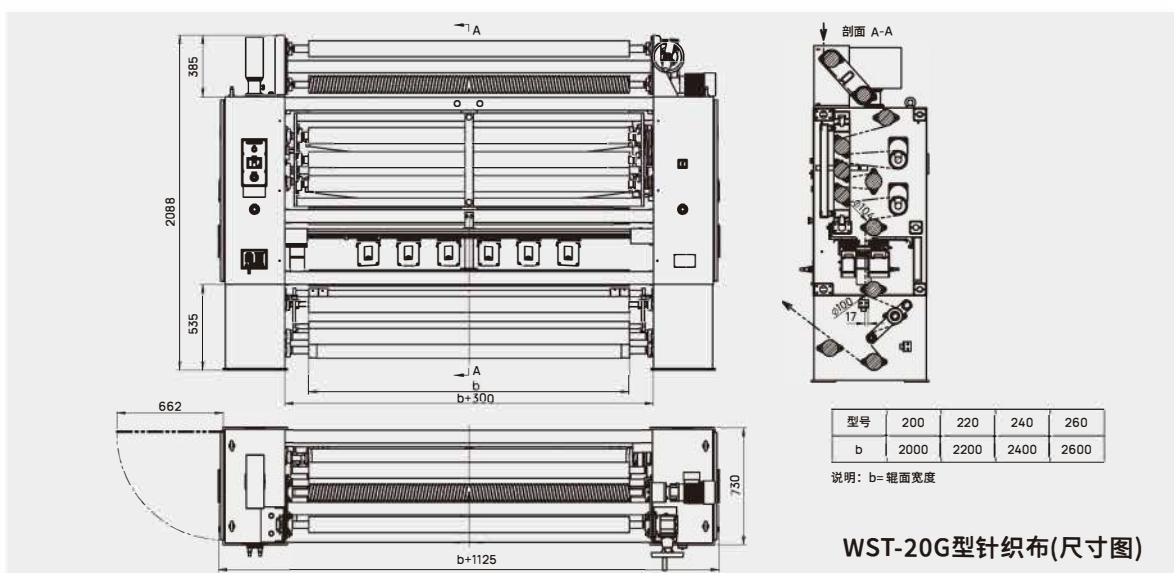
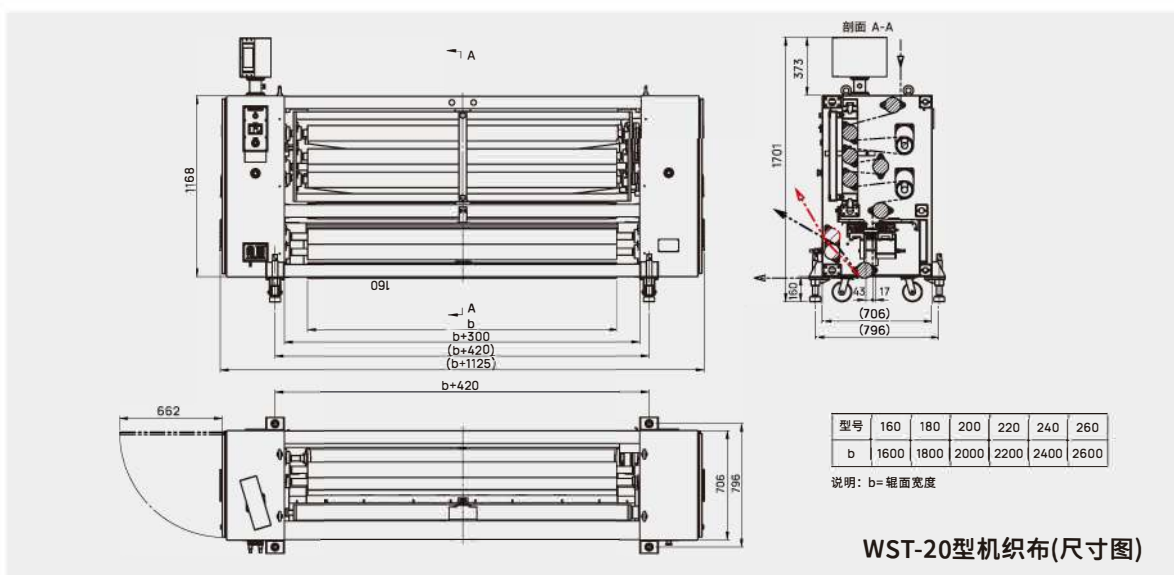


- + Compact Woven and Knitted Weaving System
- + 4 up to 8 cameras are used for comprehensive and reliable collection of warp yarn bending, arc-shaped warping, and diagonal warping
- + The camera automatically locates the current fabric width
- + Two or three arc-shaped rollers and three weft adjustment rollers are used to perform correction
- + For knitted fabrics, a tension compensation adjustment device can be used to synchronize the driven arc-shaped rollers
- + A servo motor with a servo driver is used to adjust the warp roll of weft yarn for curved and diagonal bending
- + Expansion rollers can be used for flattening wrinkle free fabrics



技术数据 Technical Data

WST-20G型整纬系统	
传感器	4-8部矩阵摄像机
角分辨率	0.1度
矫正机械装置	
斜纬修正调节行程	±400mm,在使用3个斜辊的情况下
纬纱弯弧翘曲修正调节行程	±260mm,在使用2个弧形辊的情况下
辊子直径	100mm(额定宽度<2600mm)
织物类别	梭织物和针织物
织物宽度	900-3600mm之间
织物运行速度	1-100m/min
织物张力	20-1000N
环境温度	10-50℃
工作电压	3×380V50HZ
电流消耗	7-10A
功率消耗	3-4KW
防护等级	IP54



调查表
QUESTIONNAIRE

一般数据 General Data

客 户			
街 道			
邮政编码		省 市	
国 家		网 址	
电 话		传 真	
联系人			
直拨电话		电子邮箱	
项 目			

技术数据 Technical Data

机器类别				
产 品				
机器位置				
织物类别	☐ 梭织物	☐ 针织品	☐ 棉布	☐ 地毯
织物宽度	最小_____mm		最大_____mm	
织物重量	最少_____g/m ²		最大_____g/m ²	
纬纱厚度	最少_____纬线/cm		最多_____纬线/cm	
织物运行速度	最小_____m/min		最大_____m/min	
织物张力	最小_____N		最大_____N	
织物运行状态	☐ 干式	☐ 潮湿	☐ 湿式	☐
环境温度	_____°C			
环境条件	☐ 干式	☐ 粉尘	☐ 湿式	☐
工作电压	☐ 3x_____V	☐ _____Hz		
速度额定值	☐ 0-10VDC	☐ 其他		

整纬系统技术规则 Technical Rules For The Whole Latitude System

☐ 纬纱翘曲	±_____mm	
☐ 纬纱弯弧行翘	±_____mm	
	☐ 沿生产方向左侧	☐ 沿生产方向右侧
操作	☐ 放下	电缆长度_____m
驱动器	☐ 沿生产方向左侧	☐ 沿生产方向右侧
控制柜的空调器	☐ 带	☐ 不带



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