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FIBRE PREPARATION Solutions

前准备解决方案

自动穿经机

AUTOMATIC DRAWING-IN MACHINE



关于日发纺机

浙江日发纺织机械股份有限公司成立于2002年，注册资金6948.7万。公司系国家重点高新技术企业，国家机械工业重点骨干企业，国家863计划CIMS工程示范企业，全国CAD应用工程示范企业，国家火炬计划重点高新技术企业，中国纺织机械协会副会长单位。现旗下控股山东日发纺织机械有限公司、安徽日发纺织机械有限公司、浙江日发纺机技术有限公司。

公司以成为“敏捷化的国际性公司”为愿景，以“为用户提供智能纺织装备系统解决方案，并协助用户逐步实现数字化工厂梦想”为使命，致力于机电行业的“数字科技”，已成为国内外享有高知名度的纺织设备生产企业。二十几年来已成功开发了清梳联、并条机、转杯纺纱机、喷气涡流纺纱机、倍捻机、直捻机、假捻变形机、精密并纱（络筒）机、自动穿经机、喷气织机、喷水织机、剑杆织机、毛巾织机、特种织机、针织圆机、无缝内衣机、袜机、非织造布设备等系列的上百种产品，能够为行业提供纺纱、前准备、织造、非织造四大解决方案，涉及纺织行业的各个领域。产品遍及全国各地，并销往全球30多个国家和地区，在各个行业的市场占有率位居前列。

日发纺机正致力于创造崭新的“数字科技”理念，在未来的整机生产中，建立“人流、物流、信息流”的互动平台，实现科技、环境、制造的和谐统一。铸就“信息化、敏捷化、国际化”的机械制造生产基地。

山东日发纺织机械有限公司系日发纺机全资子公司，致力于研发、制造具有国际水准的各类无梭织机。公司产品为系列喷气织机、喷水织机、剑杆织机、毛巾织机、特种织机、针刺、水刺非织造布设备、自动穿经机，三十多年的专业经验使山东日发纺机成长为我国无梭织机的主要研发、制造基地。



About Us

Zhejiang Rifa textile machinery co., ltd. is founded in 2002 with a registered capital of 69.487 million yuan. The company is a China national key high-tech enterprises, a key enterprise of the China national machinery industry, a demonstration enterprise of both China national 863 program CIMS engineering and China national CAD application engineering, a China national torch plan high-tech enterprise, and a vice president unit of China textile machinery association. It now holds three subsidiaries: Shandong Rifa textile machinery co., ltd., Anhui Rifa textile machinery co., ltd. And Zhejiang Rifa textile machinery tech co., ltd.

With the vision of “become an agile and international company” and the mission of “Provide users with intelligent textile equipment system solutions, and help users gradually realize the dream of a digital factory”, Zhejiang Rifa Textile Machinery Co., Ltd. is devoted to the area of “digital technology” in mechanical and electrical industry, and has become a well-known textile equipment manufacturer with excellent reputation at home and abroad. For over twenty years, the company has successfully developed four solutions such as spinning, fibre preparation, weaving and non-woven, including blow-room machine, draw frame, rotor spinning machine, air jet vortex spinning machine, two-for-one twister machine, twister machine for tire cord, false-twist texturing machine, precise winding machine (precise rewinding machine), automatic warp drawing machine, air jet loom, water jet loom, rapier loom, terry towel loom, specific loom, circular knitting machine, seamless knitting machine, hosiery machine and non-woven equipment etc hundreds of machines. These products have been distributed to all areas around China and sold to more than 30 foreign countries and regions with a leading market share in each respective industry.

RIFA is devoting itself to create a whole new theory of digital technology, establishing an interactive platform of “people flow, material flow and information flow”, realizing harmony and unify of science and technology, environment and manufacturing, and aiming to become a manufacturing base of “informatization, agility and internationalization”.

Shandong Rifa Textile Machinery Co., Ltd. is a wholly owned subsidiary of Zhejiang Rifa Textile Machinery Co., Ltd., devoting itself to research and manufacture top grade all kinds of shuttleless looms. air jet loom, water jet loom, rapier loom, terry towel loom, special loom and needle&spunlace non-woven equipment, automatic warp drawing machine. More than 30 year experience has it grown to be the main research and manufacture base of shuttleless weaving machines.



RFAD10全自动穿经机是一款基于种纱模式的穿经设备，穿经与织轴没有关联，可提前预穿，与前准备工序并行，市场响应快。穿经作业完成后可储备、可代工、运输方便。整机能耗低。瞬时功率小于1KW，气耗0.3m³/min，使用费用极低。其主要优点如下：

- 产品综合国际先进的技术优势，采用种纱模式。与织轴浆纱质量没有关联，可以提前进行预穿，实现品种储存，适合远途运输。订单响应性更及时，同时可以有效平衡操作工工作时间。
- 整机性价比极高，瞬时最高穿经速度135根/分钟。可有效满足客户需求；零部件通用性强，极少定制产品，维护保养费用低。
- 知识产权独立，完全自主设计研发。尤其是电控系统，集成远程控制，后期升级维护简单快捷。
- 日发纺织完善的服务网络体系，为顾客提供完善的售前、售中和售后服务，让用户无后顾之忧。

RFAD10 full-automatic drawing-in machine is a kind of drawing-in equipment based on seed yarn mode. Drawing-in is not related to loom beam, so pre-drawing can be conducted in advance, pre-drawing is parallel to the previous preparation procedure. The machine can quickly respond to market demand. After the completion of the drawing-in operation, the machine can be stored and OEM production can be achieved, and the transportation is convenient. The whole machine has low energy consumption. The instantaneous power is less than 1KW, the gas consumption is 0.3m³/min, and the use cost is extremely low. Its main advantages are as follows:

- This machine uses all the worldwide advanced technology, adopts seed-yarn drawing type. It does not matter to sizing quality, can make drawing in advance, store and transport.
- The whole machine has extremely high cost-effectiveness, with a maximum instantaneous warp speed of 135 threads/minute. It is easy to maintain and maintenance cost is low.
- Independent intellectual property right, completely designed by Rifa.
- Rely on Rifa after-sale service net to run machines trouble free.

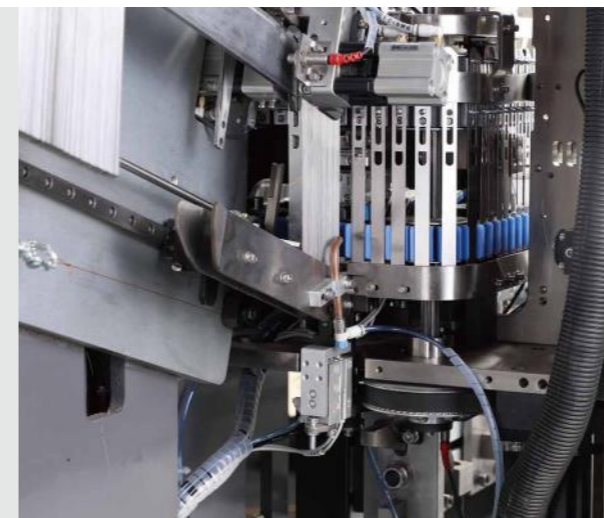


计算机控制系统

配有人机界面触摸屏，可以将运转状态、故障原因、穿综工艺参数及设定条件等信息显示在显示屏中。先进的数据处理程序，胜任任意花形织物的穿综工艺，生产工艺查询、存取便捷。

Computer Control System

Adopts touching screen with human-computer interface which can show working status, fault reason, technical data of drawing-in and setting condition. Advanced programme of data processing which can suite any drawing-in process and it is convenient to input various parameters, all these setting data can be kept for long time in the equipment.

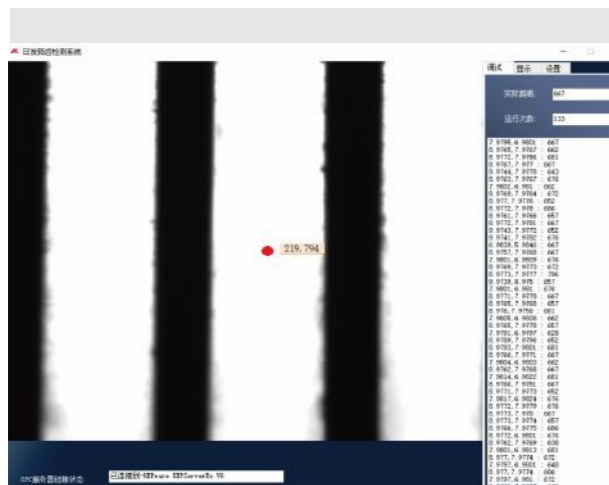


停经片系统

全自动化的停经片穿入系统，上停经片、穿停经片和挂停经片同时进行，可把经纱按设定的穿停工艺要求穿入停经片，并挂到指定的位置。

Dropper System

With full automatic dropper drawing-in system, dropper putting-on, drawing-in and hanging up can be processed at same time. Warp threads can be drawn in droppers according to the setting, and hanged-up on correct position.



机器视觉技术

采用专业的机器视觉技术，高速高精度的图像处理系统，对钢箱箱片进行识别，实现钢箱的精准定位，高速穿入纱线。

Machine Vision Technology

Utilizing professional machine vision technology and fast & precise photo processing system, reeds can be recognized, this can position the reeds precisely, then threads can be drawn-in at high speed.



引纱系统

通过专用的储纬器，以及凸轮、上中下拨叉等各机构的协调动作，可高效的引上纱线。

Thread Drawing System

Warp threads can be drawn efficiently via professional feeders, cam unit and top mid bottom shifting fork.



综丝系统

高效的综丝穿入系统，上综、穿综、挂综同时进行，可把经纱按设定的穿综工艺穿入左、右综丝，并挂到指定的综框上。

Heald System

With high efficiency heald drawing-in system, heald putting-on, drawing-in and hanging-up can be processed at same time. Warp threads can be drawn in left and right healds according to the settings, and hanged-up on correct heald frame.



小车系统

方便快捷的小车移动系统，可以为用户从穿综机到织造区快速移动，无缝对接。

Trolley System

Convenient trolley system can help you to move from drawing-in machine to weaving area fast.

技术规格

SPECIFICATION

项目	内容	备注
工作幅宽	2300mm、2800mm、3600mm	系列化
种纱种类	棉/涤棉	
穿经速度	135根/min	瞬时最快
综丝形式	J、C、O	可选
综丝高度	260mm—382mm	可调
综丝厚度	0.2mm、0.3mm	可调
综眼尺寸	5.5x1.2mm-8x3.8mm	可调
综丝库	2列供给	
综丝列数	最多16列	
经停片形式	闭口型	
停经片列数	6列	
停经片宽度	11mm	
停经片长度	145mm、165mm、180mm	可调
停经片厚度	0.2mm、0.3mm、0.4mm、0.5mm	可选
钢筘形式	标准、异形钢筘	
钢筘齿密	15~75齿/英寸	
分绞	分绞线2组、信号线4根	
电气控制	PLC、运动和视觉控制器	
输入系统	触摸屏	
驱动方式	伺服电机、气缸	
电源	三相380V、50/60HZ、3.0kW	
气源	0.3m ³ /min、0.4-0.7Mpa	
穿经小车	标配2台套	

备注：

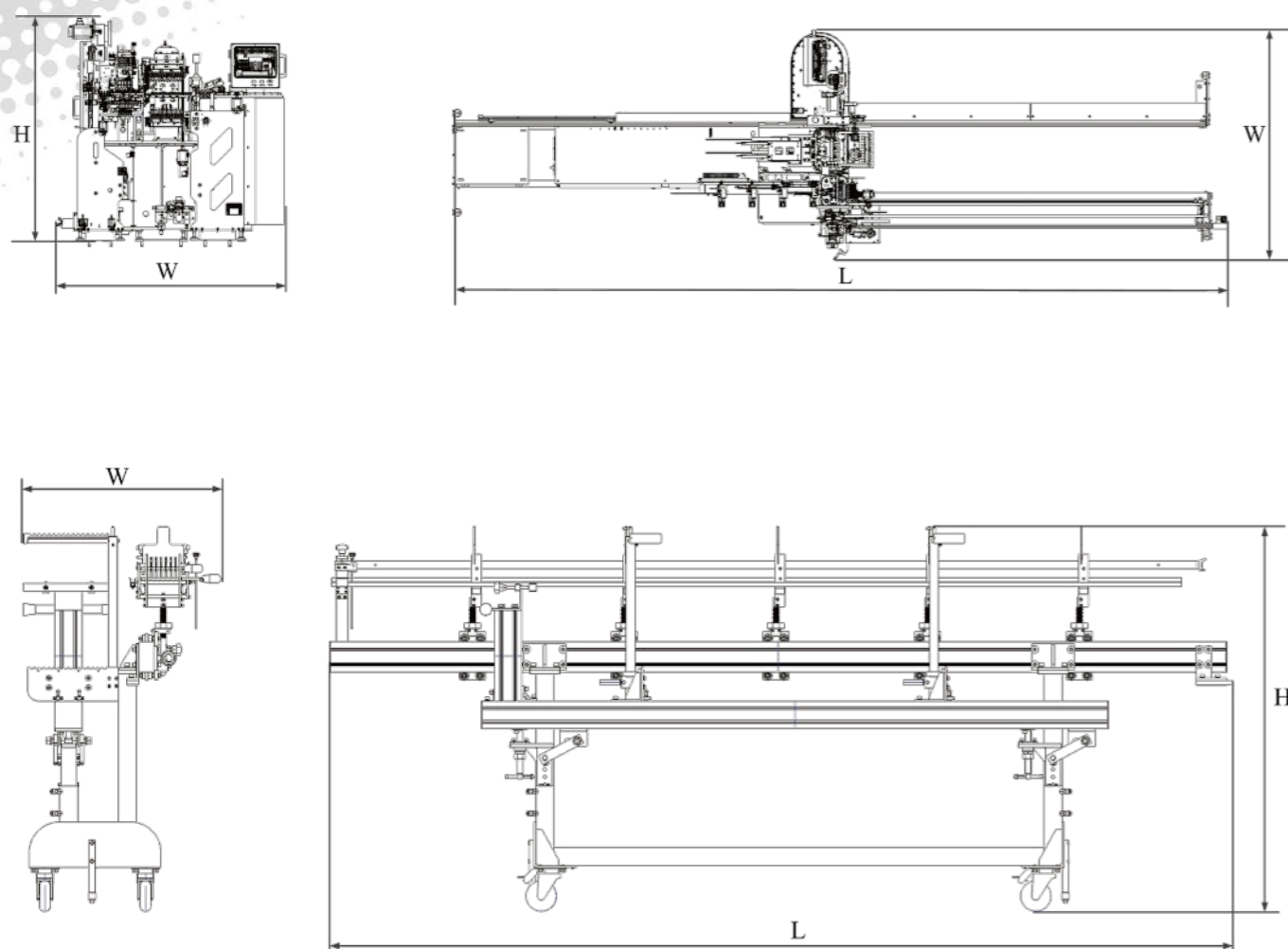
实际穿经速度或单位小时内的穿经能力与织造工艺、使用器材、工作环境、操作工人数和穿经小车数量有一定的关联性。如果经轴要穿经的根数越多，穿经性能就越高。两辆穿经小车交替使用，两个操作工工作可达到最高的穿经效率。

Item	Content	Remark
Working width	2300mm、2800mm、3600mm	Series
Yarn count	Cotton/TC	
Speed	135 Times/min	Instant fastest
Heald	J、C、O	Optional
Heald height	260mm—382mm	Adjustable
Heald thickness	0.2mm、0.3mm	Adjustable
Hole size	5.5x1.2mm-8x3.8mm	Adjustable
Heald stock	2 lines feed	
Heald lines	Max 16 lines	
Dropper type	closed	
Dropper lines	6 lines	
Dropper width	11mm	
Dropper length	145mm、165mm、180mm	Adjustable
Dropper thickness	0.2mm、0.3mm、0.4mm、0.5mm	Optional
Reed type	Standard or profiled reeds	
Dent density	15~75 dents/inch	
Lease	Lease 2 groups、signal 4 lines	
Electric control	PLC,controller of movement & vision	
Input system	Computer touching screen	
Driving	Servo motor、cylinder	
Power	3-hp 380V、50/60HZ、3.0kW	
Pneumatic	0.3m ³ /min、0.4-0.7Mpa.	
Harness	Standard supply of 2 sets	

Remark:

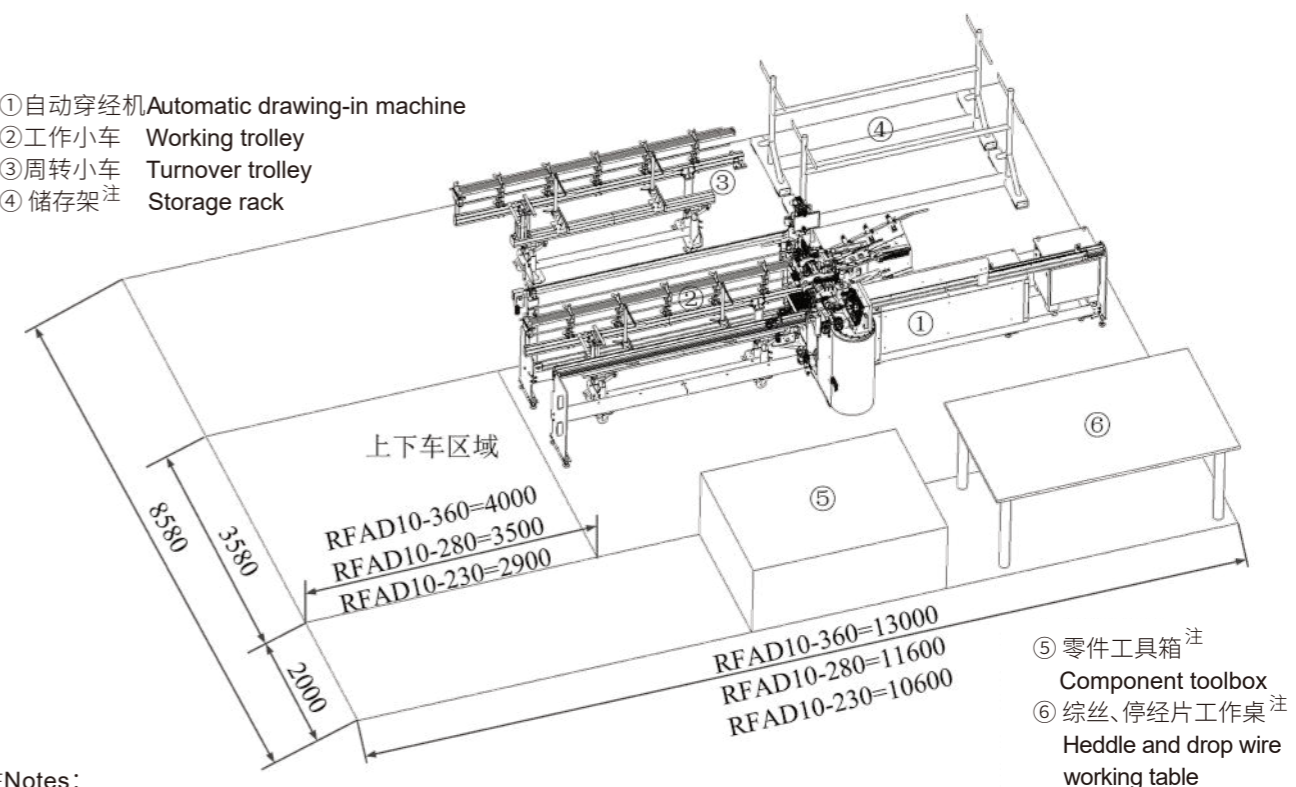
The actual drawing speed is related with weaving design, accessories, working surroundings, quantity of workers and harness transport cart. More total warp ends, better drawing efficiency.

尺寸和重量
SIZE AND WEIGHT



推荐设备布局图
SUGGESTED EQUIPMENT LAYOUT

- ① 自动穿经机 Automatic drawing-in machine
- ② 工作小车 Working trolley
- ③ 周转小车 Turnover trolley
- ④ 储存架^注 Storage rack



注Notes:
标号④、⑤、⑥是建议客户便于生产任务的开展而可自行配置的物料,而非设备出厂配置,特此说明。
The material of ④、⑤、⑥ shall be prepared by customer; not supplied along with machines.

自动穿经机标准配备两台穿经小车,在交替操作过程中,一辆小车直接卸下后已准备好的小车直接推入,安装调整 完毕后即可进行穿经作业,缩短生产节拍提高生产效率。

安装设备的地基和环境要求:

- ①地面平整,最大不平行度为±15mm或总差异30mm;
- ②设备安装的地面周围无明显震动;
- ③地基硬化厚度不低于16cm;
- ④设备周围无强磁干扰。

另外,设备安装好后,需要在设备周围留出与墙面或障碍物约1米宽的间距,以便于操作工或机修工操作或对设备进行维护。

Two harness transport carts are standard equipment for one drawing machine. The prepared cart can be used directly once another one gets finished, this can much increase the working efficiency.

Foundation and environment for machine installation:

- ①Floor should be flat, max nonparallelism is ±15mm or total discrepancy 30mm;
- ②No floor vibration around the machine installation.
- ③Foundation harden thickness is not less than 16cm.
- ④No electromagnetic interference around the machine.

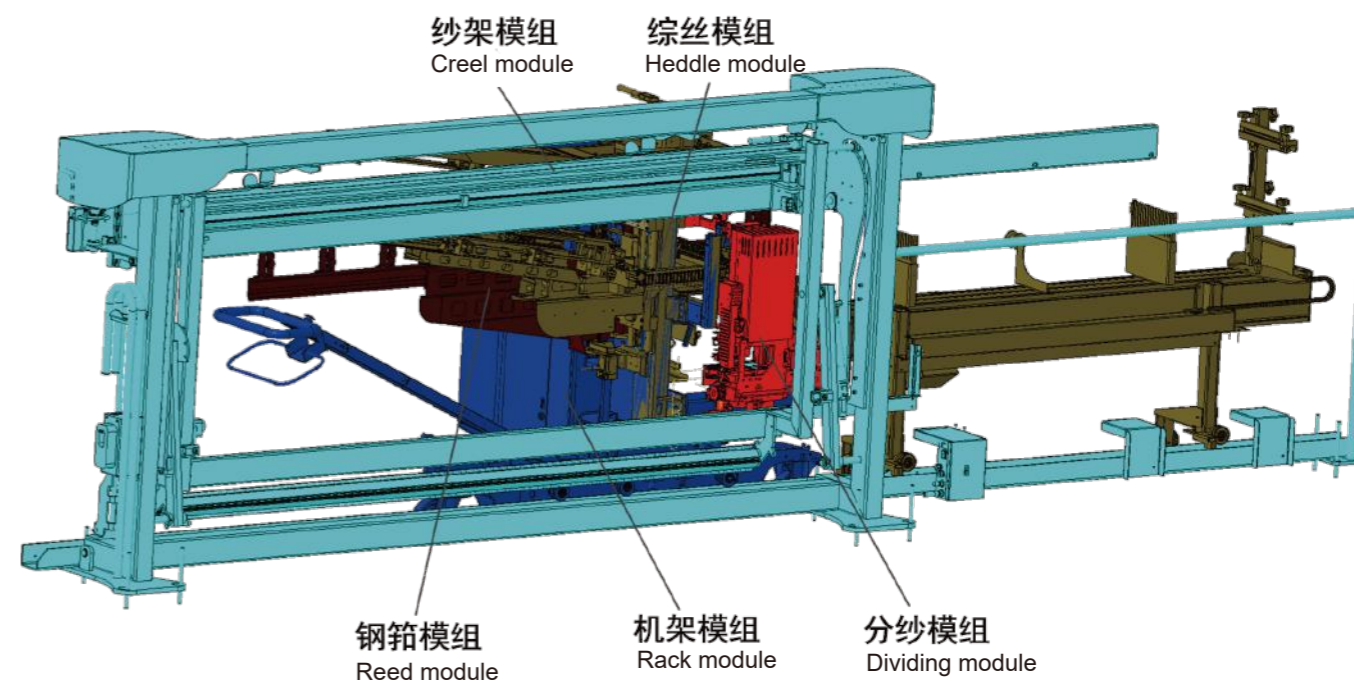
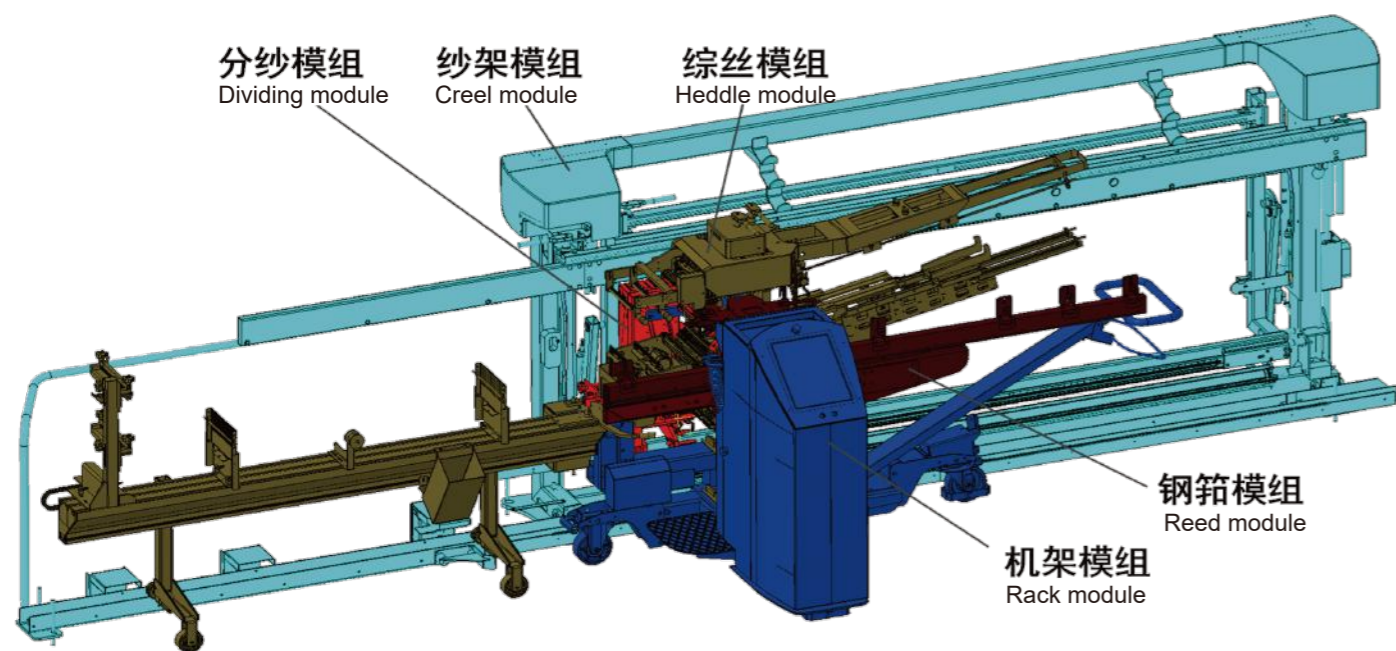
And it is necessary to keep 1 meter space around the machines in order to make it convenient to operate the machine.

类别 Item	规格 Specification	L=长(mm) L=Length (mm)	W=宽(mm) W=Width (mm)	H=高(mm) H=Height (mm)	重量 (kg) Weight (kg)
穿经系统 Drawing machine	RFAD10-230	6100	1600	1700	1400 (不包括穿经小车) (not including cart)
	RFAD10-280	7100	1600	1700	1490 (不包括穿经小车) (not including cart)
	RFAD10-360	8500	1600	1700	1600 (不包括穿经小车) (not including cart)
穿经小车 Harness transport cart	230 小车 cart	3000	650	1300	180
	280 小车 cart	3700	650	1300	197
	360 小车 cart	4300	650	1300	223



RFAD20全自动穿经机是针对化纤长丝纱的穿经需求开发的一款设备，可适用于西装衬里、休闲服装、遮阳篷布以及产业用布等面料的穿经作业。该机型由一台移动式穿经机和1个或多个固定式穿经站组成，可完全自动将经纱穿入综丝和钢筘，综丝可排出到最多16根综条上。该机型具有非常高的穿经能力，设计最高速度260根/分钟。同时该机型还具有空间布局的灵活性，能最大程度的提高织造车间利用率，方便转运与储存。

RFAD20 full-automatic drawing-in machine is an equipment developed for meeting the demands for the drawing-in of chemical fiber filament yarn, the machine can be used for drawing-in operation of suits lining, casual clothing, awning cloth and industrial cloth. This model is composed of a mobile drawing-in machine and one or more fixed drawing-in stations, it can completely and automatically draw warp into heddle and reed, and the heddle can be discharged to up to 16 healds. This model has very high drawing-in capacity, and the designed maximum speed is 260 pieces/minute. At the same time, the model also has the flexibility of spatial layout, which can maximize the utilization rate of weaving workshop and facilitate transfer and storage.



从机械结构上RFAD20自动穿经机可分为5个部分：分纱模组、钢筘模组、综丝模组、机架模组和纱架模组。各个部件在设备上位置如上图所示。

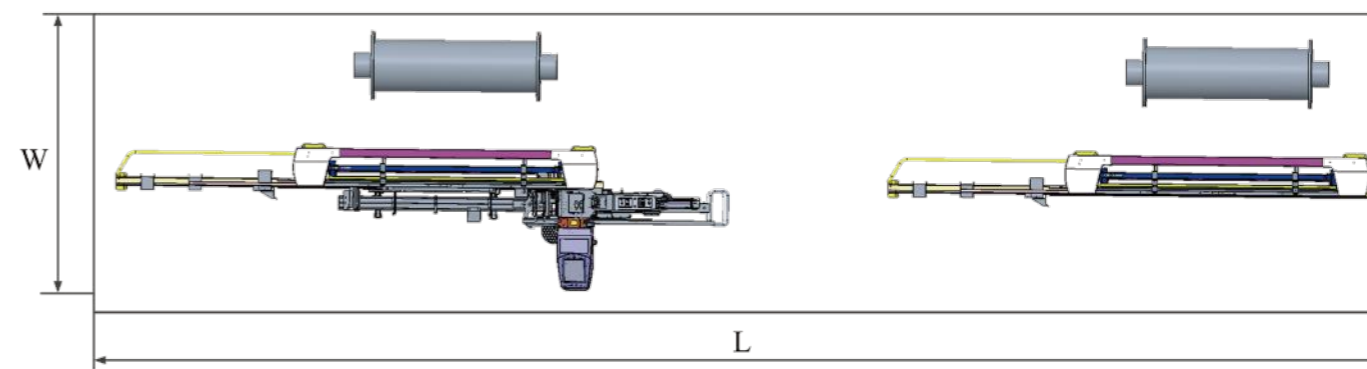
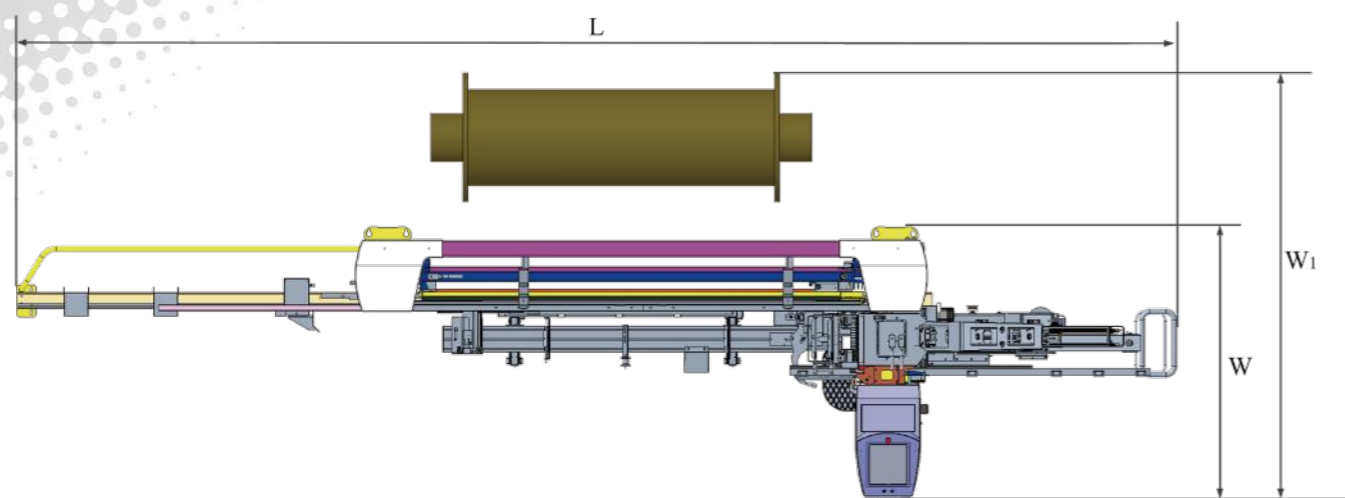
From the mechanical structure, the RFAD20 full-automatic drawing-in machine can be divided into five parts: Dividing module, Reed module, Heddle module, Rack module and Creel module. The location of each component on the machine is shown in the figure above.

技术规格
SPECIFICATION

项目Item	内容 Content	备注Remark	
基本配置 Basic configuration	单台移动式穿经机 Single mobile drawing-in machine	可调选配 Adjustable options	
	2台纱架 (标配) 2 creels (standard)		
穿经速度 Speed	最高穿经速度260根/分钟 The maximum drawing-in speed 260 pieces/minute	瞬时最高	
纱线原料 Yarn count	① 复合丝和单丝 ① Composite filament and monofilament ② 棉和混纺纱 (粗梳、精梳) ② Cotton and blended yarn (carding and combing)		
纱线支数 Yarn count	1.1-67tex、10-600den、Nm 900-15		
经轴 Warp beam	一层经纱层 A layer of warp layer	标配	
	1比1拆分绞模组 □ 1: 1 leasing module □	选配 Optional	
	双层经轴模组 □ Double-layer warp beam module □	选配 Optional	
	公称幅宽 Nominal width	230cm □ 360cm □	可选 Optional
	边盘直径 Diameter of side plate	最大110厘米 Max 110cm	
综丝 Heddle	综耳类型 Healdloop type	O型钢综或塑料综丝 O type steel healds or plastic healds	
	综丝类型 Type of heald	单列综 / 双列综 Single row healds/double row healds	
	综丝高度 Height of heald	220mm—330mm	可调 Adjustable
	综丝厚度 Heddle thickness	0.25mm-0.65mm	可选 Optional
	综眼尺寸 Size of heald eye	最小5.5x1.2mm Minimum 5.5x1.2mm	
	综丝列数 Number of heald rows	8 □ 12 □ 16 □	可选 Optional
	综条尺寸 Heald size	1.5×9mm / 1.5×10mm	
钢筘 Reed	最宽筘幅 Maximum reed width	跟随纱架幅宽 Width of following creel	
	钢筘齿密 Tooth density of reed	20-350筘齿/10cm (标准) 20-350 reed teeth/10cm (standard)	
	筘齿高度 Height of reed teeth	40-100mm	
	钢筘高度 Height of reed	80-150mm	
	钢筘形式 Reed form	平筘、异形筘 Flat reed, profiled reed	

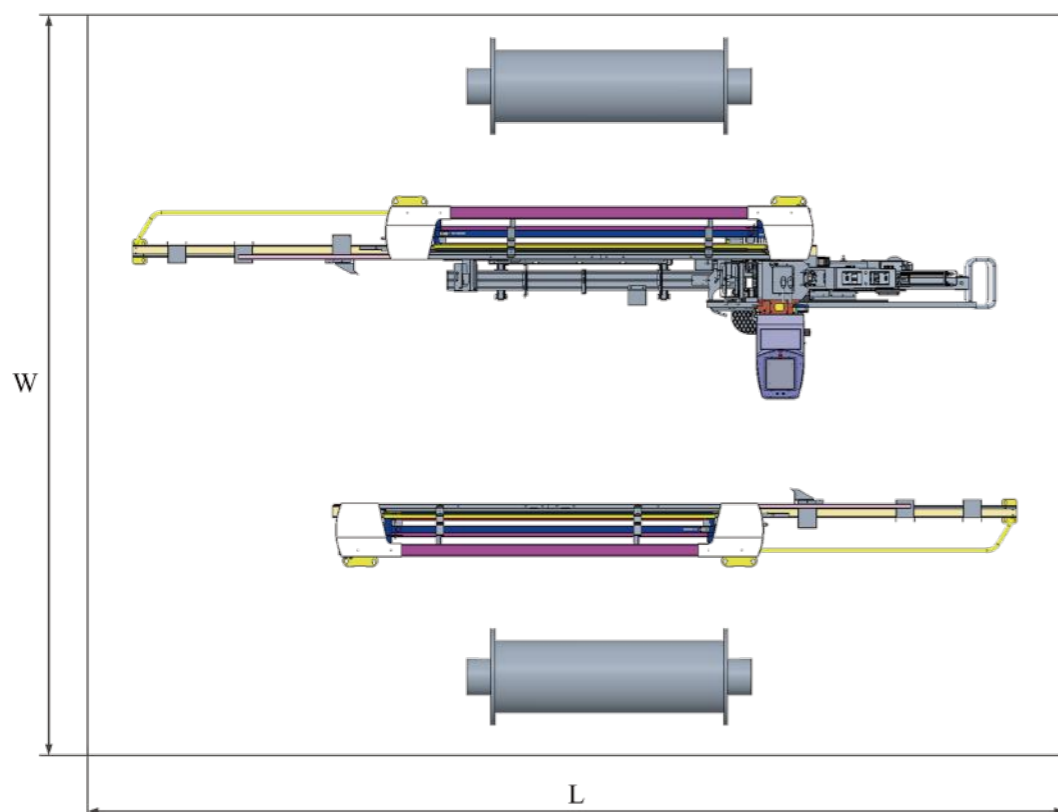
项目Item	内容 Content	备注Remark
控制 Control	软件 Software	专用操作控制软件 Special operation control software
	输入 Input	触屏、USB、远程输入□ (选配) Touch screen, USB, remote input port (optional)
	语言 Language	中文、英文; 其他语言根据要求提供 Chinese, English; other languages are available upon request
电源要求 Power supply requirements	功率约为1.0千瓦 (kVA) The power is about 1.0 kilowatts (kVA) 单向220V交流±10%; 50赫兹(Hz)交流 One-way 220V AC±10%; 50 Hz AC	
气源要求	输入压力 Input pressure	≥0.5Mpa
	气压波动 Air pressure fluctuation	<±0.05Mpa
	最小供气量 Minimum air supply	≈ 1000NL/min
	气压露点 Barometric dew point	-17°C
	含油量 Oil content	基本无油, 残油含量 < 1mg/Nm ³ / < 0.8 ppm No oil basically, content of residual oil is < 1mg/Nm ³ / < 0.8 ppm
	杂质含量 Impurity content	固态杂质含量 < 5 mg/m ³ , 粒度<5μm Solid impurity content < 5 mg/m ³ , particle size < 5μm
	空气质量 Air quality	ISO 8573.1; 质量级别:3 ISO 8573.1; quality level: 3
环境条件要求 Requirements of environmental conditions	室内条件 Indoor conditions	室内条件与一般应用在纺织厂中的条件大致相同。 无研磨剂, 例如玻璃灰尘和类似的物质 Indoor conditions are roughly the same as the conditions of common application in textile mills. Free of abrasives, such as glass dust and similar substances
	湿度 Humidity	相对湿度 30-95 %, 无结露 Relative humidity 30-95%, no condensation
	环境空气 Ambient air	无酸性 Acid-free
	温度 Temperature	运行温度 +18到+40°C Operating temperature +18 to + 40°C
	照明 Lighting	在工作面要求 700勒克司 700 lux is required for the working face
地面要求 Ground requirements	平坦度 Flatness	最大不平度为 ±15mm或总差异30mm The maximum non-parallelism is ±15mm or the total difference is 30mm
	平面要求 Plane requirements	粗糙度要求在常规混凝土范围之内 Roughness is required to be within the range of conventional concrete

尺寸和重量
SIZE AND WEIGHT

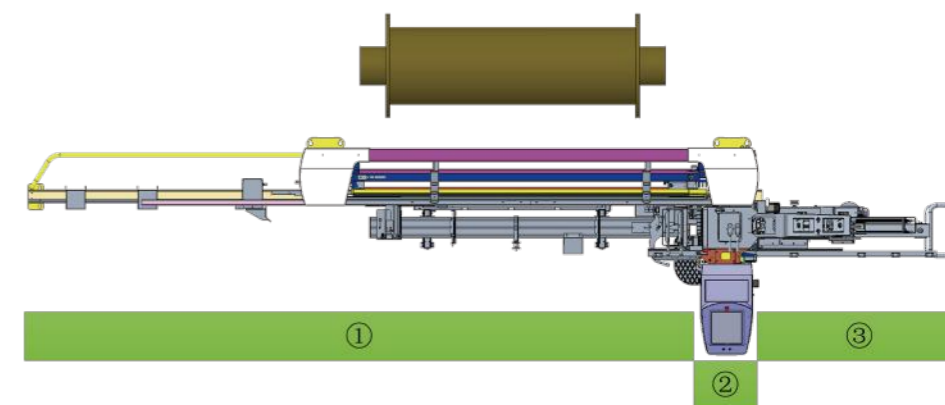


一个纱架的整机尺寸 Whole size of a creel	规格 Specifications	L2.3M	L3.6M	W	W1
	尺寸(单位: mm) Dimensions (in mm)	6850	8310	1600	2600

两个纱架的尺寸布局。 Size layout of two creels. 两个纱架可串行摆放, 也可以并行摆放。 The two creels can be placed in series or in parallel.	规格 Specifications	L2.3M	L3.6M	W
	尺寸(单位: mm) Dimensions (in mm)	15000	21000	3500



操作者的站位。
Operator's standing position.
操作者应当在如下所示的①②③穿经机上的位置进行操作。
The operator shall carry out operation at the positions ①, ② and ③ of the drawing-in machine, as shown below.



备注: 尺寸布局及重量参数是依据2.3米和3.6米幅宽16列综丝配置, 配置变化后尺寸重量略有差异。
Remarks: The size layout and weight parameters are based on the configuration of 16-row heddles with the width of 2.3 m and 3.6 m, and the size and weight have slight changes after the configuration changes.

规格 Specifications	L2.3M	L3.6M	W
尺寸(单位: mm) Dimensions (in mm)	7700	10700	6500

机型幅宽类别 Width category of the model		长度 (mm) L=Length (mm)	宽度 (mm) W=Width (mm)	高度 (mm) H=Height (mm)	重量 (kg) Weight (kg)
幅宽2.3M Width 2.3M	单个穿经机 (机头) Single drawing-in machine (head)	2440	1370	1520	410
	单个纱架 Single creel	7250	1670	1700	500
	单个穿经机+两个纱架总质量 Total mass of single drawing-in machine+ two creels	1410			
幅宽3.6M Width 3.6M	单个穿经机 (机头) Single drawing-in machine (head)	3640	1370	1520	500
	单个纱架 Single creel	8710	1670	1700	750
	单个穿经机+两个纱架总质量 Total mass of single drawing-in machine+ two creels	2000			



RFAD30全自动穿经机是一款应对复杂工艺面料穿经的一款设备。该机型功能完备，标准配置具有升级功能的纱架车、具有拆分绞功能的机头，功能可选色循环监视。还可针对粗支纱、毛纺纱、扁丝等进行特殊配置。搭配我们已开发完成的色织分绞机，可完全适应色织等高复杂组织的穿经作业。

RFAD30 full-automatic drawing-in machine is a kind of equipment to deal with the drawing-in of the fabrics made with complex process. This model has complete functions, its standard configuration includes the creel trolley with upgrade function, the head with leasing function. And the function of colorful cycle monitoring is optional. And special configuration can also be provided for coarse yarn, woolen yarn and flat filament, etc. With our colored leasing machine which have been developed successfully, the drawing-in machine can fully adapt to the drawing-in operation of highly complex weaves such as yarn-dyed weaving.

全自动穿经机

FULL-AUTOMATIC DRAWING-IN MACHINE

RFAD30自动地将每根经纱穿入综丝、停经片和钢筘。穿入经纱的综丝可以被排列到最多20片综框上或16根综条上(也可根据需求定制页数),停经片被排列到最多6根停经片轨道上。

RFAD30 automatically draws each warp into the heddle, the drop wire and the reed. The heddles that warp is drawn into can be arranged on up to 20 heald frames or 16 healds (the number of the leaves can also be customized according to requirements), and the drop wires can be arranged on up to 6 drop wire rails.

经纱模组

从经纱层到综框,分纱器将经纱分开并递送给穿经钩。穿经钩穿过钢筘、综丝和停经片的纱线孔,然后拉着纱线回到原位。在经纱穿入停经片、综丝和钢筘之后,经纱从穿经钩中被排出,由吸嘴吸入。经纱传感器检查纱线是否已正确穿入。

Drop wire module

The preparation of the drop wire module is carried out in the drop wire warehouse. The drop wire separator separates the drop wires, and then a drop wire rotating head grabs the drop wire and brings it to the drawing-in position. After the warp is drawn into the drop wire, the drop wire is received by the drop wire distributor, and it is ejected and arranged on the set stop rod.

停经片模组

停经片组的准备工作是在停经片仓库里进行的。停经片分离器将停经片分离,然后一个停经片旋转头抓住停经片,将其带至穿经位置。穿入经纱后,停经片由停经片分配器接收,弹出并被排列在设定的停经杆上。

Drop wire module

The preparation of the drop wire module is carried out in the drop wire warehouse. The drop wire separator separates the drop wires, and then a drop wire rotating head grabs the drop wire and brings it to the drawing-in position. After the warp is drawn into the drop wire, the drop wire is received by the drop wire distributor, and it is ejected and arranged on the set stop rod.

控制箱

此控制箱为穿经系统提供电子控制和集中电源,此电源确保机器运行所需的电压。此分级结构控制系统通过马达和递增数字转换器,以及通过使用电磁阀和传感器的分配电路来进行通信。

Control box

This control box provides electronic control and centralized power supply for the drawing-in system, the power supply provides the voltage required for operation of the machine. The hierarchical control system achieves communication through the motor and incremental digital converter, as well as through distribution circuit using solenoid valve and sensor.

综丝模组

综丝成组被排列在两条综丝库导轨上。分综装置将综丝一根一根分开,然后每根综丝被传送到旋转式综丝传送带上。此传送带将综丝送至穿经的位置。在穿经前,通过对中综眼的中心来将综丝对齐。穿入经纱后,综丝被送往工艺设定的综框位置或综条上。然后排综器根据穿综循环将综丝推往综框或综丝轨道。

Heddle module

The heddle groups are arranged on two guide rails of the heddle warehouse. The heddle separation device separates the heddle one by one, and then each heddle is conveyed to the rotary heddle conveyor belt. This conveyor belt conveys the heddle to the position where it will be drawn into the drop wire, heddle and reed. Before drawing-in, align the heddles by targeting at the center of the heddle eye. After warp is drawn into the drop wire, heddle and reed, the heddle is sent to the heald frame position or heald set by the process. Then the heddle ejector pushes the heddle to the heald frame or the heddle rail according to the heddle drawing cycle.

钢筘模组

钢筘安装在钢筘运输车上,穿经时此运输车用来运送钢筘。钢筘的光学监视和控制系统根据钢筘的规格来检查钢筘的运送。筘片进入筘齿,穿经钩将经纱穿入筘齿,筘齿的开口足够大以便穿经钩和纱线能顺利地通过。

Reed module

The reed is installed on a reed transporter, during drawing-in, the transporter is used to transport the reed. The optical monitoring and control system of the reed checks the conveying of the reed according to the specifications of the reed. The reed wire enters the reed teeth, it passes through the drawing-in hook, draw the warp into the reed teeth. The opening of the reed teeth is large enough so that the drawing-in hook and yarn can pass through it smoothly.

操作控制台

通过操作控制台控制器上的键盘或触屏来进行操作和编程;显示屏显示所需要的信息,文字显示使用所在国的语言,信息用图示法来显示;机器状况和穿经进程始终显示;穿综循环和参数的程序编制也同样可以通过操作控制台来进行,同时操作控制台还提供有关机器的运行统计数据 and 机器维护信息;如需要按紧急停车按钮就可使机器停机;主机位于控制台的盖子下。

Operation console

Carry out operation and programming by operating the keyboard or touch screen on the console controller; the display screen displays the needed information, the characters are displayed in the language of the country where the machine is located in, and the information is displayed by graphic method; the machine status and drawing-in process are always displayed; the programming of the drawing-in cycle and parameters can also be carried out by the operation console. At the same time, the operation console also provides the running statistics and maintenance information of the machine; you can press the emergency stop button to stop the machine when necessary; the main machine is located under the cover of the console.

技术规格
SPECIFICATION

项目	内容	备注	
基本配置	固定式穿经机		
	带经轴架的移动式穿经车，带提升装置	标配2台	
	用剑钩穿经的穿经模组		
	一层经纱层的经纱分经模组（带分绞功能）		
	带两条综丝库导轨的综丝模组		
	钢筘模组（标准范围）		
	带六根停经杆的停经片模组		
	带主机和U盘驱动器的控制模组		
穿经速度	最高穿经速度165根/分钟		
纱线检测	电子双经探测		
纱线原料	棉纱和混纺纱（粗精梳不限）		
纱线支数	5~150S		
经轴	一层经纱层，有分绞或无分绞	标配	
	最大公称宽度	230cm <input type="checkbox"/> 400cm <input type="checkbox"/>	
	最大边盘直径	120cm	
	最大重量	1200千克	含经轴车
综丝	综耳类型	J <input type="checkbox"/> C <input type="checkbox"/> O <input type="checkbox"/>	系列化
	综丝类型	单列综/双列综	
	综丝高度	260mm—382mm (11"-15")	可调
	综丝厚度	0.25mm <input type="checkbox"/> 0.30mm <input type="checkbox"/> 0.38mm <input type="checkbox"/>	
	综眼尺寸	最小5.5x1.2mm，综眼偏移最大10mm	
	综丝列数	最多综条数16列（O型）	16列
综框要求	具有可拆卸的综头		
	带定位槽（从钢筘侧看右边）		
	不带定位槽	选配	
停经片	停经片形式	开口型 <input type="checkbox"/> 闭口型 <input type="checkbox"/>	
	停经片列数	6列输出	
	停经片宽度	7-11mm	可调
	停经片长度	125mm-180mm	可调
	停经片厚度	0.20mm-0.65mm	可调
钢筘	最宽筘幅	230cm <input type="checkbox"/> 400cm <input type="checkbox"/>	
	钢筘齿密	5~75齿/英寸	
	筘齿高度	40-100mm	
	钢筘高度	80-150mm	
	筘齿深度	最大16mm	
	钢筘形式	平筘、异形筘、双排筘	

项目	内容	备注
控制	软件	Windows操作系统
	打印机	USB或网络打印机
	语言	中文、英文；其他语言根据要求提供
穿经机电源需求	带接地的三相电网，无零线	
	外置保险丝保护，最小为每相10A	
	功率约为1.6千瓦（kVA）	
	3 x 220V交流± 10%；50赫兹(Hz)	
带提升装置的加强型穿经车电源需求	带接地保护的单项电源	
	外置保险丝保护，最小为每相10A	
	2x220V交流±10%；50赫兹(Hz)	
气源需求	输入压力	0.7Mpa—1Mpa
	气压波动	<±0.05 Mpa
	最小供气量	主机台850，吸气管500，总供应量1350NL/min
	气压露点	-17°C，在大气压下用一台吸附式干燥器
	含油量	基本无油，残油含量< 1mg/Nm3 /< 0.8 ppm
	杂质含量	固态杂质含量< 5 mg/m3 ,粒度<5µm
	空气质量	ISO 8573.1; 质量级别:3
环境需求	室内条件	与一般应用在纺织厂中的条件大致相同。无研磨剂，例如玻璃灰尘和类似的物质
	湿度	相对湿度30—95 %，无结露
	环境空气	无酸性
	温度	运行温度+18 到+40 °C,停机温度+5 到+45 °C
	在 ¹⁰	小时内最大温度差异不超过15°C
	室高	260cm
	照明	在工作面要求700勒克司（与正常书写环境相当）
地面需求	材料	浇注混凝土，工作的区域里地面要紧实、负载厚度为16 cm
	平坦度	最大不平行度为±15 mm或总差异30 mm
	平面要求	粗糙度要求在常规混凝土范围之内 即从高点到底点的高度相差可接受范围应在Rf max≤3mm
	承载能力	≥900kg/m2(230机型)、≥1100kg/m2(400机型)
噪音	在操作工位置测量 81分贝	
选配功能及装置	粗支纱 <input type="checkbox"/> 、羊毛 <input type="checkbox"/> 、扁丝 <input type="checkbox"/> 、竹节花式纱线 <input type="checkbox"/> 、毛圈花式线 <input type="checkbox"/>	
	特殊纱线（ <input type="checkbox"/> ）	
	两层经纱层，带色循环控制（需配置分绞机） <input type="checkbox"/>	
	色循环监视和控制 <input type="checkbox"/>	

技术规格

SPECIFICATION

Item	Content		Remark
Basic configuration	Fixed drawing-in machine		
	Mobile drawing-in trolley with warp beam stand, it has the lifting device		2 sets as standard configuration
	Drawing-in module using gripper hook for drawing-in		
	Warp splitting module with one warp layer (with leasing function)		
	Heddle module with two heddle warehouse guide rails		
	Reed module (standard range)		
	Drop wire module with six stop rods		
	Control module with host and U disk drive		
Drawing-in speed	The maximum drawing-in speed 165 pieces/minute		
Yarn inspection	Electronic double-warp detection		
Yarn raw material	Cotton yarn and blended yarn (carding and combing are not limited)		
Count of yarn	5~150S		
Warp beam	A layer of warp yarn, with or without leasing		Standard configuration
	Maximum nominal width	230cm □ 400cm □	
	Maximum side plate diameter	120cm	
	Maximum weight	1200KG	With beamtruck
Heddle wire	Healdloop type	J □ C □ O □	Serialization
	Type of heddle	Single row healds/double row healds	
	Height of heddle	260mm—382mm (11"-15")	Adjustable
	Heddle thickness	0.25mm □ 0.30mm □ 0.38mm □	
	Size of heddle eye	Minimum 5.5x1.2mm, Max 10mm	
	Number of heddle rows	Max 16 rows (O)	16 rows
Requirements for heald frame	With detachable heald head		
	With positioning groove (on the right side when viewing from the reed side)		
	Without positioning groove		Optional configuration
Drop wire	Form of drop wire	Open Type □ Close Type □	
	Number of rows of drop wire	6 row output	
	Width of drop wire	7-11mm	Adjustable
	Length of drop wire	125mm-180mm	Adjustable
	Thickness of drop wire	0.20mm-0.65mm	Adjustable
Reed	Maximum reed width	230cm □ 400cm □	
	Tooth density of reed	5 ~ 75 teeth/inch	
	Height of reed teeth	40-100mm	
	Height of reed	80-150mm	
	Depth of reed teeth	Maximum 16mm	
	Reed form	Flat reed, profiled reed and double-row reed	

Item	Content		Remark
Control	Software	Windows operating system	
	Printer	USB or network printer	
	Language	Chinese, English; other languages are available upon request	
Power supply demand of drawing-in machine	Three-phase grid with grounding, no neutral wire		
	External fuse protection, minimum 10A per phase		
	The power is about 1.6 kilowatts (kVA)		
	3 x 220V AC ± 10%; 50 Hertz (Hz)		
Power supply demand of reinforced drawing-in trolley with lifting device	Single-phase power supply with grounding protection		
	External fuse protection, minimum 10A per phase		
	2x220V AC ±10%; 50 Hertz (Hz)		
Gas source demand	Input pressure	0.7Mpa—1Mpa	
	Air pressure fluctuation	< ±0.05 Mpa	
	Minimum air supply	Main machine table 850, suction pipe 500, total supply 1350NL/min	
	Barometric dew point	-17 °C, use an adsorption dryer under atmospheric pressure	
	Oil content	No oil basically, content of residual oil is < 1mg/Nm3 / < 0.8 ppm	
	Impurity content	Solid impurity content < 5mg/m3, particle size < 5pm	
	Air quality	ISO 8573.1; quality level: 3	
Environmental requirements	Indoor conditions	It is roughly the same as the conditions of common application in textile mills. Free of abrasives, such as glass dust and similar substances	
	Humidity	Relative humidity 30-95%, no condensation	
	Ambient air	Acid-free	
	Temperature	Operating temperature +18 to +40°C, shutdown temperature +5 to +45°C	
	The maximum temperature difference shall be not more than 15 °C within 10 hours		
	Height of room	260cm	
	Lighting	700 lux is required for the working face (equivalent to the normal writing environment)	
Ground demand	Materials	Concrete pouring ground; in the working area, the ground shall be solid and the load thickness shall be 16 cm.	
	Flatness	The maximum non-parallelism is ± 15 mm or the total difference is 30 mm	
	Plane requirements	Roughness is required to be within the range of conventional concrete, that is, the acceptable range of height difference from high point to bottom point Rf max ≤ 3mm	
	Carrying capacity	≥ 900kg/m2 (model 230), ≥ 1100kg/m2 (model 400)	
Noise	It is 81 decibels when measuring at the operator's position		
Functions and devices of optional configuration	Coarse yarn <input type="checkbox"/> , wool <input type="checkbox"/> , flat filament <input type="checkbox"/> , slub yarn <input type="checkbox"/> , boucle <input type="checkbox"/>		
	Special yarn ()		
	Two-layer warp layer, colored cycle control (leasing machine is required) <input type="checkbox"/>		
	Colored cycle monitoring and control <input type="checkbox"/>		

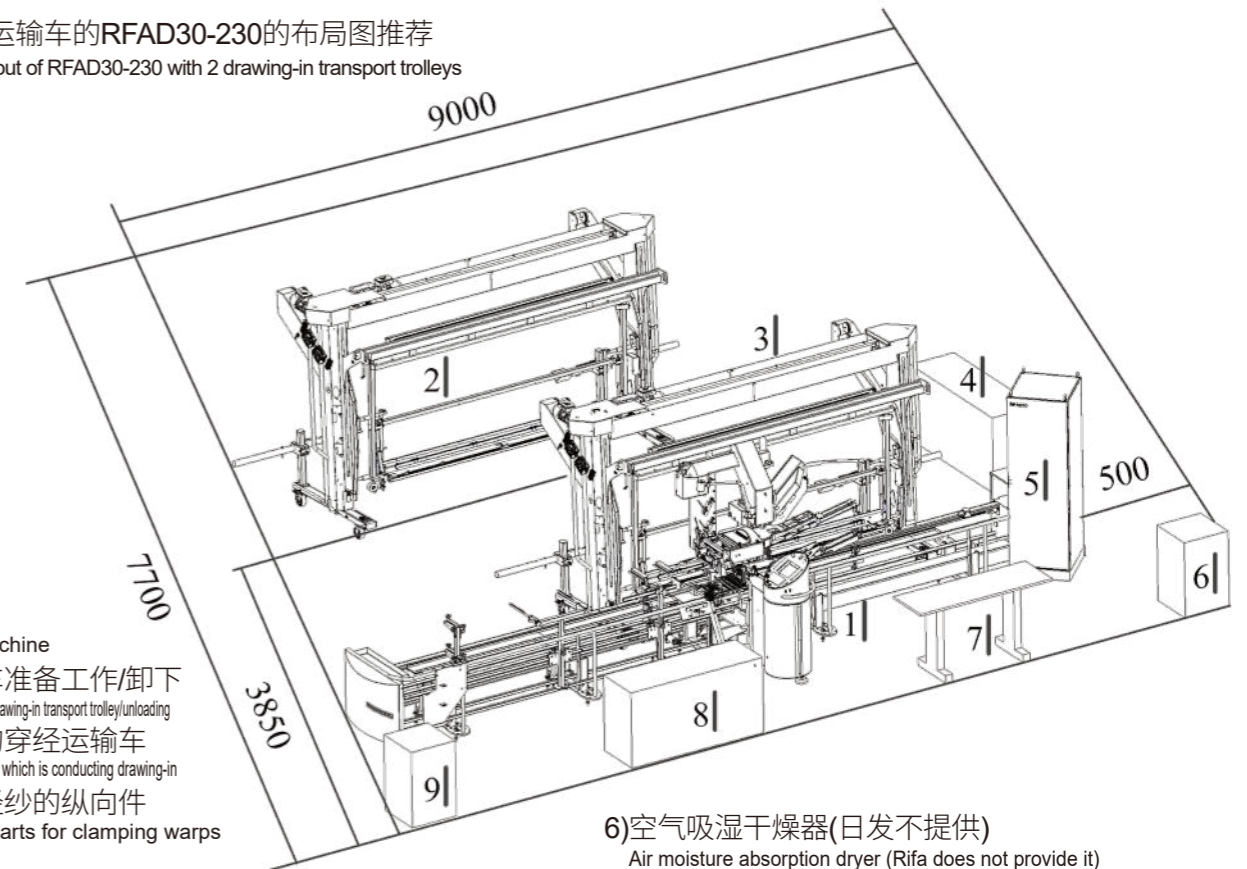
尺寸和重量

SIZE AND WEIGHT

尺寸		长度 (mm)	宽度 (mm)	高度 (mm)	重量 (kg)
整体系统	RFAD-230	8000	1900	1850	2400 (不含穿经运输车)
	RFAD-400	12700	1900	1850	2400 (不含穿经运输车)
控制箱		700	650	2000	200
穿经运输车	2.3米	3900	1600	2400	1150 (提升装置负载能力为360kg)
	4.0米	5900	2400	2540	1300 (提升装置负载能力为850kg)
所需空间(最低要求)		长度 (mm)	宽度 (mm)	高度 (mm)	最小使用面积 (m ²)
RFAD30-230配1辆穿经车		9000	5600	2450	约50m ² (不含经轴运输车通道)
RFAD30-230配2辆穿经车		9000	7700	2450	约75m ² (不含经轴运输车通道)
RFAD30-400配1辆穿经车		14000	7200	2600	约100m ² (不含经轴运输车通道)
RFAD30-400配2辆穿经车		14000	9300	2600	约130m ² (不含经轴运输车通道)

Size		L=Length (mm)	W=Width (mm)	H=Height (mm)	Weight (kg)
Overall system	RFAD-230	8000	1900	1850	2400 (No drawing-in transport trolley)
	RFAD-400	12700	1900	1850	2400 (No drawing-in transport trolley)
Control box		700	650	2000	200
Drawing-in transport trolley	2.3m	3900	1600	2400	1150 (Load capacity of lifting device is 360kg)
	4.0m	5900	2400	2540	1300 (Load capacity of lifting device is 850kg)
Demedanded space (minimum requirement)		L=Length (mm)	W=Width (mm)	H=Height (mm)	Minimum usable area (m ²)
RFAD30-230 with 1 drawing-in transport trolleys		9000	5600	2450	约50m ² (Excluding warp beam transport trolley passage)
RFAD30-230 with 2 drawing-in transport trolleys		9000	7700	2450	约75m ² (Excluding warp beam transport trolley passage)
RFAD30-400 with 1 drawing-in transport trolleys		14000	7200	2600	约100m ² (Excluding warp beam transport trolley passage)
RFAD30-400 with 2 drawing-in transport trolleys		14000	9300	2600	约130m ² (Excluding warp beam transport trolley passage)

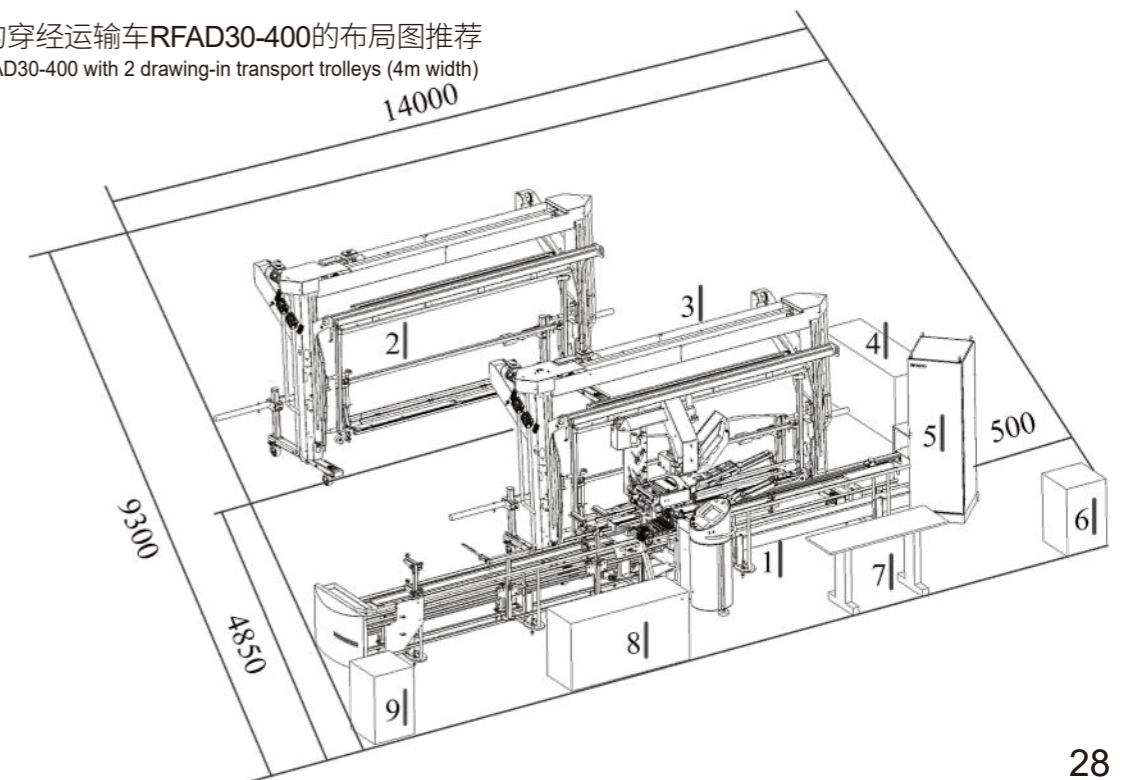
配备2辆穿经运输车的RFAD30-230的布局图推荐
Recommended layout of RFAD30-230 with 2 drawing-in transport trolleys

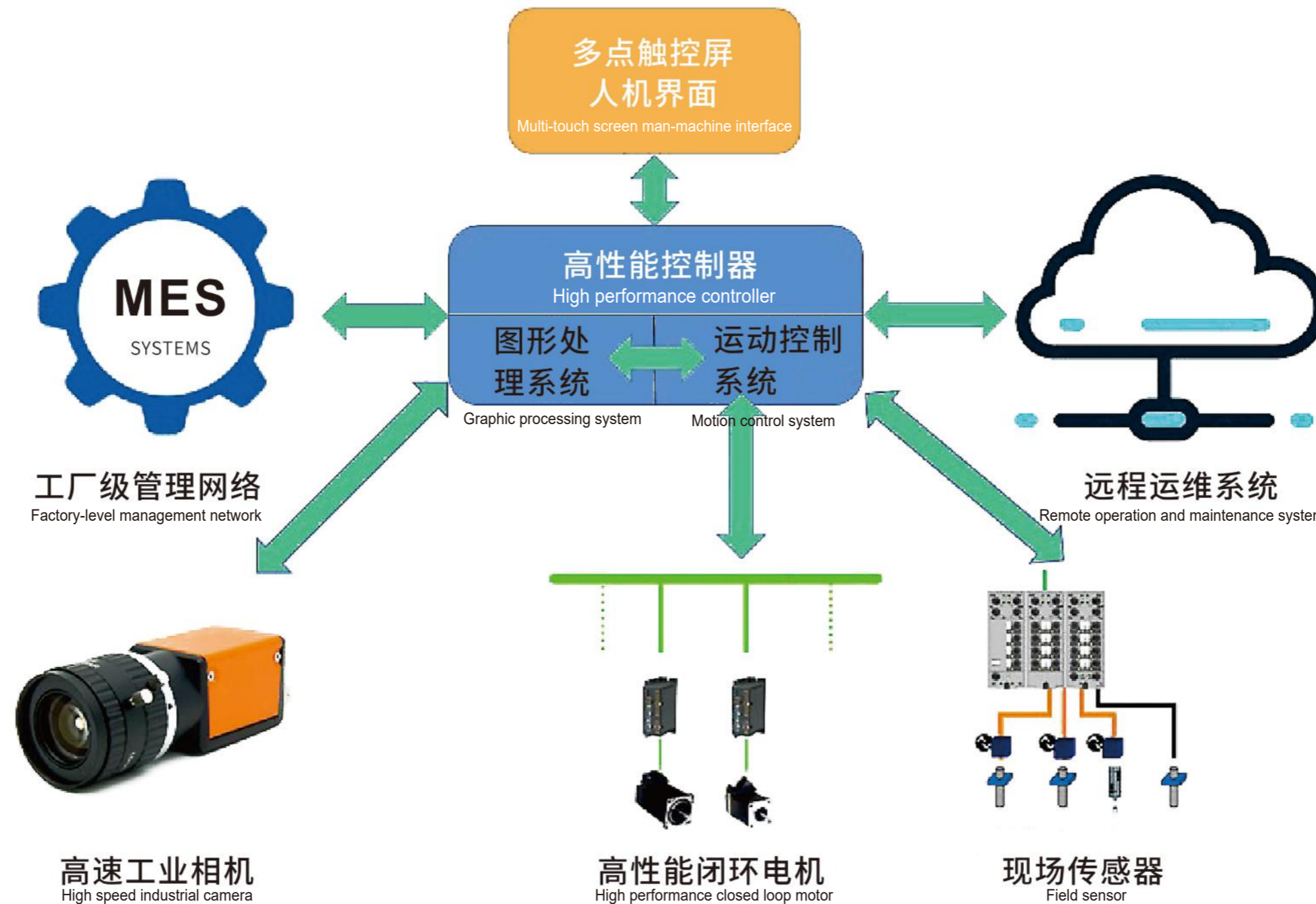


- 1)穿经机
Drawing-in machine
- 2)穿经运输车准备工作/卸下
Preparation for working of drawing-in transport trolley/unloading
- 3)正在穿经的穿经运输车
The drawing-in machine which is conducting drawing-in
- 4)用于夹紧经纱的纵向件
Longitudinal parts for clamping warps
- 5)控制箱
Control box

- 6)空气吸湿干燥器(日发不提供)
Air moisture absorption dryer (Rifa does not provide it)
- 7)用于综丝/停经片的工作台(日发不提供)
Workbench used for heddle/drop wire (Rifa does not provide it)
- 8)支撑杆、综框和钢箱的存放架(日发不提供)
Storage rack for supporting rod, heald frame and steel box (Rifa does not provide it)
- 9)工具箱
Toolbox

配备2辆幅宽为4米的穿经运输车RFAD30-400的布局图推荐
Recommended layout of RFAD30-400 with 2 drawing-in transport trolleys (4m width)





日发全系列自动穿经机的整机控制系统完全自主研发, 可享有软件免费升级服务, 功能可选装远程控制功能, 以适应未来智能工厂所需。

The whole machine control system of Rifa's full series automatic drawing-in machines is completely independently developed, and users can enjoy free software upgrade service. In terms of the functions, the remote control function is optional, so that the machine can meet the needs of future intelligent factories.