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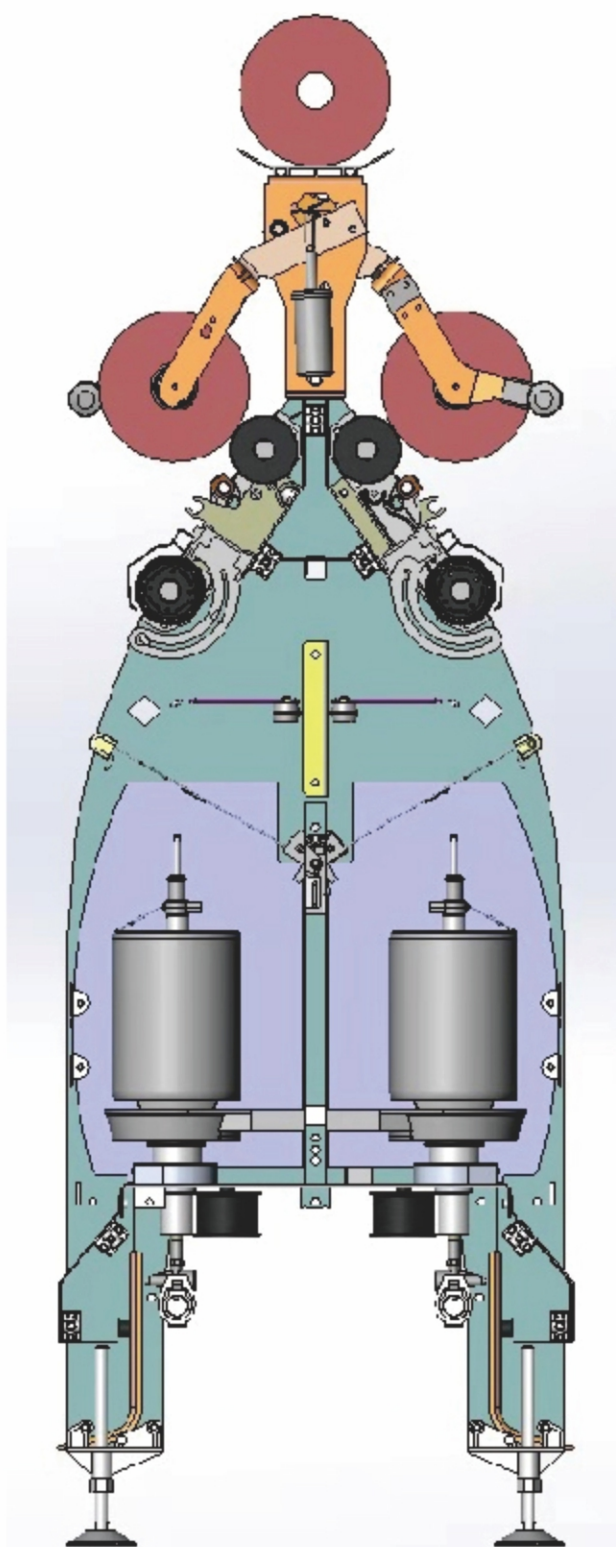
STAPLE FIBER TWISTER

短纤倍捻机

浙江东星纺织机械有限公司

ZHEJIANG DONGXING TEXTILE MACHINERY CO., LTD.

Machine cross section 机器截面图



锭子	Spindle
气圈罩	Balloon limiter
气圈环	Balloon Ring
锭罐	Spindle pot
多级张力器	Multi-tension device
气圈钩	Yarn balloon guide
气圈	Yan balloon
偏转罗拉	Deflection rollers
摩擦辊	Friction roller
筒纱	Yarn package
夹片	Centering disc
摇架	Cradle
压轮	Press roller
穿线阀	Threading valve
刹车板	Foot pedal
断纱探杆	Yarn feeler
超喂罗拉	Pre-take-up roller

短纤倍捻机

01 save节能

- ▲e-save锭子序列
e-save spindle family
- ▲气图罩 Balloon limiter

02 Maintenance简易的维护

- ▲高可靠性 Reliability
- ▲更长的维护周期
Easy maintenance
- ▲装机时间短
Short installation time

03 Automation自动化

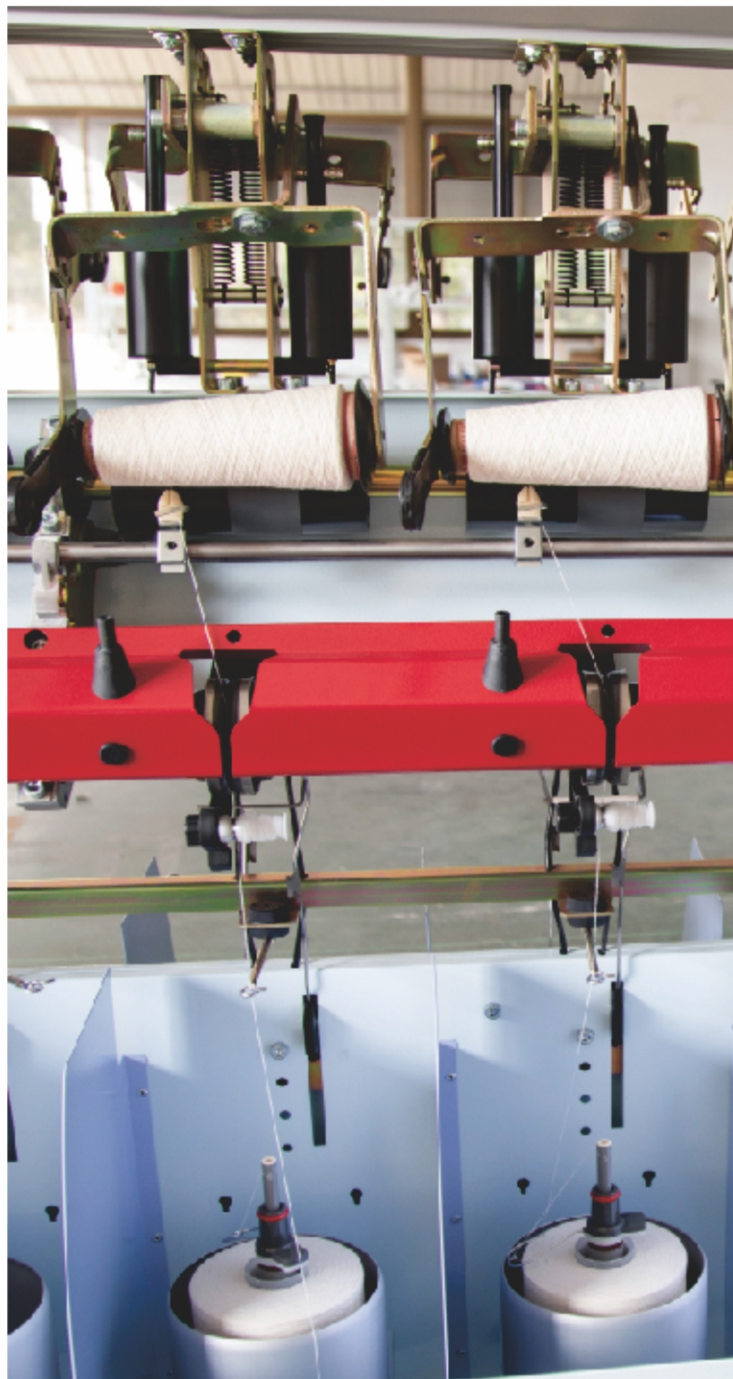
- ▲一键完成工艺设定
Just set all parameters in touch screen
- ▲气圈高度集中调节
Central adjustment for balloon height
- ▲超喂包围角集中调节
Central adjustment for deflection rollers
- ▲灵活的筒子成型
Flexible package formation

04 Reinforce 增强

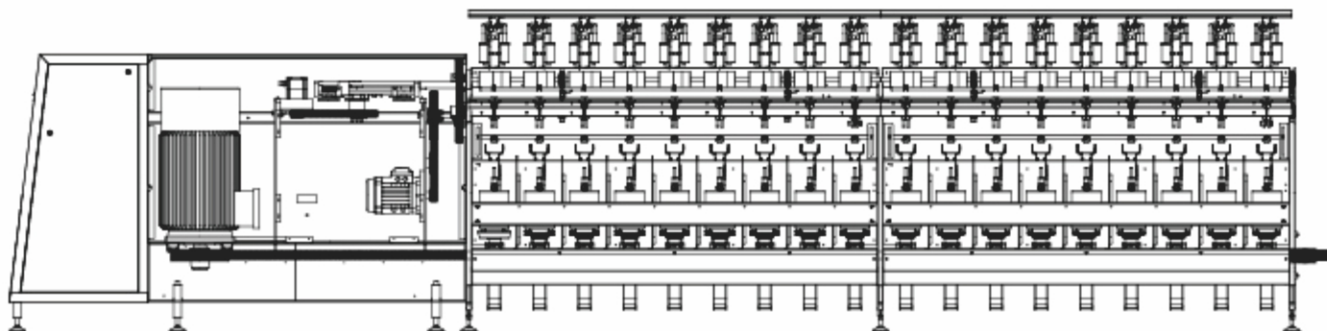
- ▲加强型框架，机器更稳定
Reinforced machine frame
- ▲更高的产量 High productivity
- ▲更少的占地面积
Less space requirement

05 Technology 高技术

- ▲新型的驱动系统
New driving concept
- ▲断电保护功能
Power off system



传动方式 Transmission



伺服驱动 Servo Technology

伺服驱动系统由三个独立的电机组成,分别是

- ▲主电机:驱动锭子
- ▲小电机:驱动卷取
- ▲伺服电机:驱动横动

The servo drive system uses 3 independent motors to drive respectively

- ▲main motor: spindles
- ▲slave motor: take-up rollers
- ▲servo motor: traverse

PC将三个独立的电机以恒定的速比运行,确保在正常运行和启停阶段的度一致。

Controlled by PLC 3 independent motors are running with constant speed ratio(the TPM evenness),both during normal running conditions and start/stop phase

即使在停电的情况下,(此时主电机充当发电机)PLC也会使三个电机逐步有序减速,直至完全停止。

In case the power supply failure.(the main motor works as generator)PLC will control and reduce their 3 speeds progressively until the complete stop.





伺服驱动优势 Advantage of Servo Technology

- ▲ 卷取速度达120米/分钟
 - ▲ 一键设定参数，任意捻度的设定
 - ▲ 电子防叠
 - ▲ 电子松边，用于染色筒子
 - ▲ 无油润滑，免维护
 - ▲ 个性化的筒子成形方式
 - ▲ Up to a higher productivity due to delivery speeds of up to 120 m/min.
 - ▲ Operating costs reduced thanks to low energy, space and maintenance costs.
 - ▲ Reduced friction over the entire force progression.
 - ▲ Electronically controlled anti-patterning device.
 - ▲ Highest twist constancy in the twisted yarn when starting & stopping the machine.
 - ▲ The textile contact area is isolating from the spindle drive area, for its better yarn quality.
- Frequency inverters enable fast, customer-specific settings of
1. Spindle speed
 2. Arrange of twist
 3. Package shaping

倍捻锭子 Spindle

高品质的锭子保证了高品质的纱线

- ▲所有与纱线直接接触的部件均经过特殊表面处理，给纱线以最有效的保护
- ▲震动噪音最小化，锭子中所有的旋转部件均安装在有弹性的构件上
- ▲上部轴承采用自润滑方式并装有特殊的防尘保护
- ▲内部轴承采用单独的油嘴进行油脂润滑以保证更好的润滑效果
- ▲纱线退绕张力调节方便，适应纱线范围广
- ▲气动自清洁纱线通道
- ▲加捻区与传动区独立分开
- ▲系列化锭子设计，最大限度降低能耗

High quality spindles ensure the high quality yarn. Here not only the yarn count range that can be processed is decisive, but also the quality of the twisted yarn produced and the energy requirement.

- ▲ Energy savings due to the latest spindle technology
- ▲ High cost-effectiveness due to optimum drive equipment and matching spindle combinations
- ▲ Lower noise emissions by optimised balloon geometry thanks to a new spindle design.
- ▲ Self-cleaning yarn channel in the spindle rotor by pneumatic threading system .
- ▲ Reserve disc with special, wear-resistant surface finish.
- ▲ Low-vibration running due to high production precision.
- ▲ The yarn twisted area is isolating from the spindle drive area.

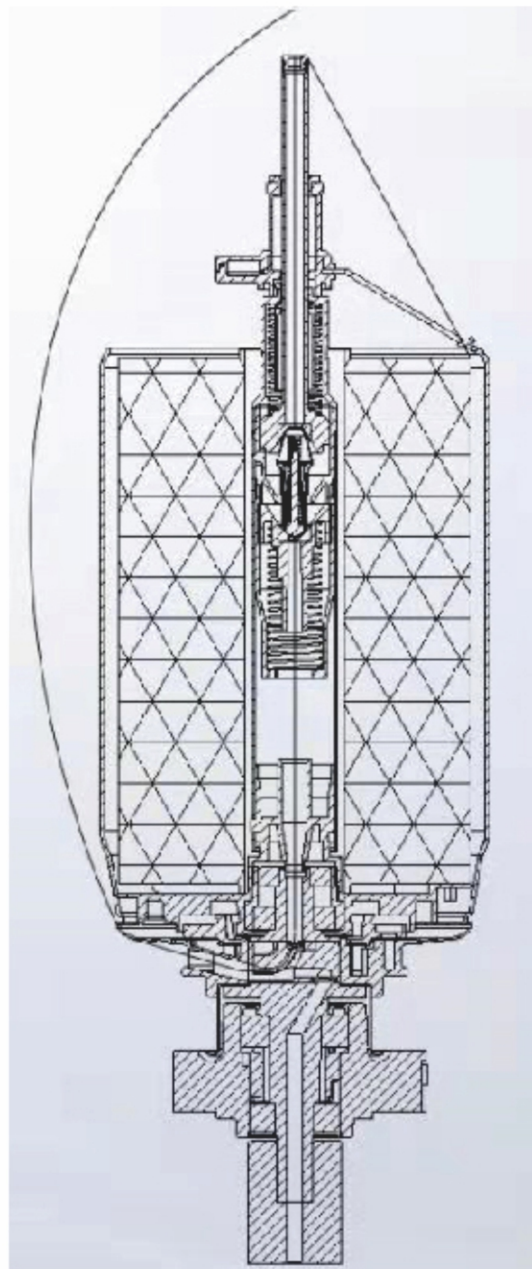
锭子是倍捻机的核心，系列化节能锭子设计和新概念传统系统是降低能耗的关键。

节能锭子序列，包含以下锭子系列：

The Two-for-One spindle is the heart of the machine.

The key to reduce the power consumption is the E-saving spindles and the new drive system.

Here is the list of the broad-based spindle family.

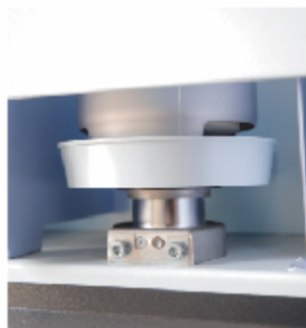


DM-07/-07HE/-07EC0
DM-08/-08HE/-08EC0
DM-09/-09HE/-09EC0
DM-10/-10HE
DM-11

E-save 锭子系列的优势: Advantage of e-save spindles

e-save锭子通过优化气圈形状,能降低约40%的气圈能耗。

Up to 40% balloon energy consumption can be saved by optimizing the balloon shape through e-save spindles



纱线张力控制装置 Tension device

纱线张力控制装置影响退卷张力并控制锭盘上的储纱量。
纱线张力可方便的实现可调6级。

The tension device with 6 steps adjustment to control yarn tension.

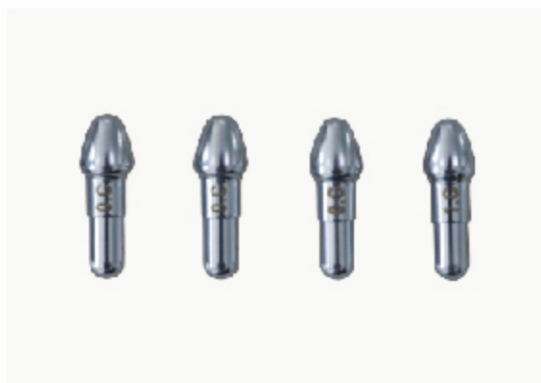


纱线通道的表面处理 Surface treatment

在纱线加捻的过程中,所有与纱线直接接触的部件均经过特殊表面处理,为纱线提供最有效的保护。

Yarn protection during guidance via high-grade, wear-resistant surface finish

- ▲ 锭翼, 张力器和张力子弹
Flyer, tension device, capsule
- ▲ 锭子内部纱线通道
Spindle inner path
- ▲ 气圈导纱钩和断纱探杆
Balloon guide, yarn feeler
- ▲ 超喂罗拉和偏转罗拉
Over feed roller deflection roller
- ▲ 横动导纱器
Traverse guid
- ▲ 气圈罩
Balloon limiter



选配装置Options



气动穿纱装置(选配装置)
Pneumatic Threading device

气动穿纱装置 Pneumatic Threading Device

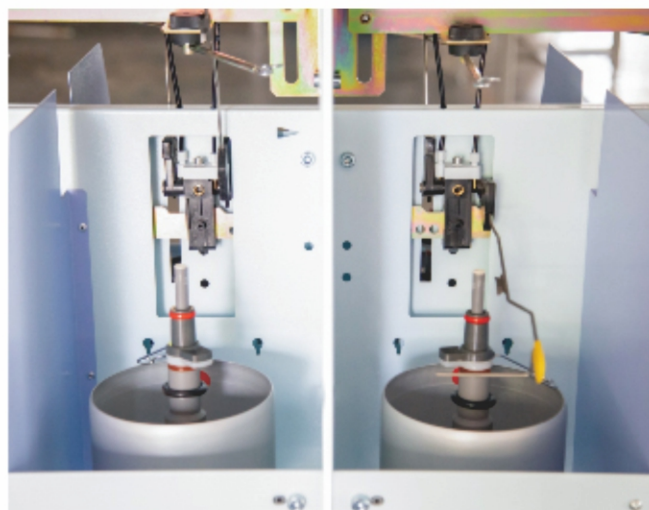
踩下刹车板可刹住锭子。进一步踩下刹车板时,压缩空气气流携带纱线进入锭子后向上,至锭罐上部,操作工可方便地抓住纱头。该装置可保证穿纱操作准确无误,并大大缩短的穿纱时间。

The pneumatic threading device sucks the yarn through the spindle and leads it upwards around the spindle pot so that the operator can easily pick up the yarn immediately. This device avoids the complicated manual threading process.

筒子自动抬升装置 Package Pneumatic lift-off device

断纱探杆落下,表明该锭位纱线断头或需要更换筒子。卷绕筒子经过一段时间延时后从摩擦辊筒上自动抬起,以避免筒子表面纱线受损。

Once falling down the Yarn-feeler, with a time delay, the pneumatic lifting device takes the running packages off the drive drum, to avoid the rubbing of the package surface.



断纱探杆锁定装置(选配装置)
Locking device

留尾纱装置 Tail device

自动形成换筒纱尾,换筒纱尾的长度可集中调节。

The tail device which is automatic, enables further processing of the package by storage of the beginning of the yarn.

断纱探杆锁定装置 Locking device

当停机时,断纱探杆被锁定在工作位置。这可以防止在停机时断纱探杆下落,以保证下次正常开机。根据客户需求可选择气动或机械断纱探杆锁定装置。

The yarn stop-feelers are automatically locked in their working position in case of the machine stoppage or power failure thus ensures the quality of the twisted yarn.

前挡风板 Front wall 上蜡装置 Waxing 油杯 Lubricant

能更好的保持气圈稳定和锭罐保护。上蜡装置和油杯的使用减少了加捻纱线在后道工序中的摩擦系数、减少毛羽、飞花、粉尘。
For better balloon pot protection.

Waxing and Lubricant reduce the frictional coefficient of the twisted yarn in the subsequent processes and hairness, dust fibre fly also will be reduced.



产量计算

$$\text{Yarn speed} = \frac{\text{锭速(转/分)} \times 2}{\text{捻度No.of twists(T/m)}} \text{ m/min}$$

$$\text{Production} = \frac{\text{纱速} \times \text{工作时间} \times \text{锭数} \times \text{工作效率}}{\text{公支数Nm(metric count)} \times 1000}$$

$$\text{Nm(metric count)} = \text{Ne(count)} \times 1.6934$$

Cotton(Ne60S/2), 800T/M, 11000r/min, 200Spindles

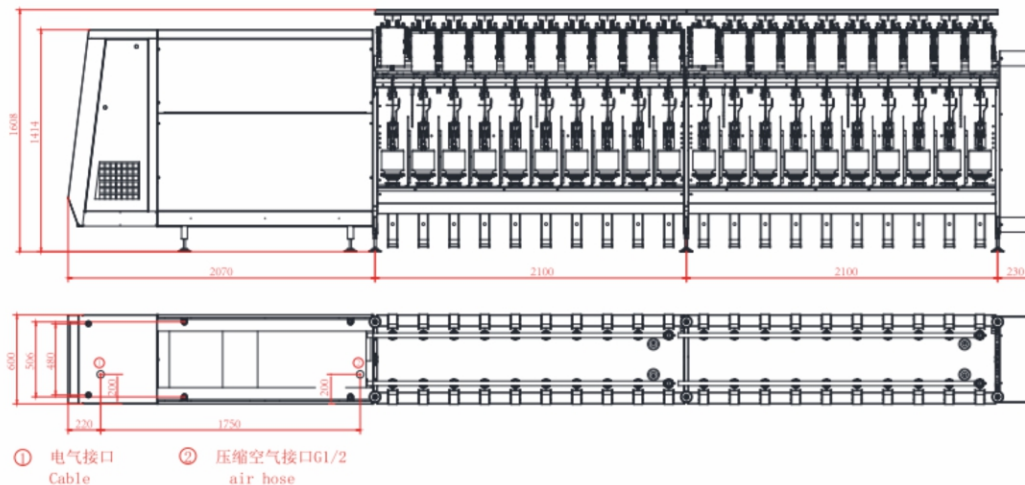
$$\text{Yarn speed} = \frac{11000 \times 2}{800} = 27.5 \text{ (m/min)}$$

$$\text{Production} = \frac{27.5 \times 24 \text{H} \times 60 \text{m} \times 200 \text{S} \times 0.98}{(60 \text{S}/2 = 30) \times 1.6934 \times 1000} = 152.78 \text{ Kg/Day}$$

技术参数 Specification

锭子型号	DM-07	DM-08	DM-09	DM-10	DM-11
捻度范围TPM	80-2800T/m 2.03-71.09T/inch	80-2800T/m 2.03-71.09T/inch	80-2800T/m 2.03-71.09T/inch	80-2800T/m 2.03-71.09T/inch	80-2800T/m 2.03-71.09T/inch
锭速 Spindle speed 每分钟加入的捻度	最高11,000rpm max. 最高22,000min ⁻¹ max.	最高12,500rpm max. 最高25,000min ⁻¹ max.	最高13,500rpm max. 最高27,000min ⁻¹ max.	最高14,500rpm max. 最高29,000min ⁻¹ max.	最高15,000rpm max. 最高30,000min ⁻¹ max.
支数范围Count	Ne 4/2-100/2有气圈罩 With BL Ne 8/2-100/2无气圈罩 Without BL	Ne 8/2-170/2有气圈罩 With BL Ne 16/2-170/2无气圈罩 Without BL	Ne 20/2-200/2有气圈罩 With BL Ne 20/2-200/2无气圈罩 Without BL	Ne 30/2-200/2有气圈罩 With BL Ne 30/2-200/2无气圈罩 Without BL	适用纯棉、绢纺 Special for 100% cotton silk Ne 60/2-200/2无气圈罩 Without BL
吸入卷装": Feed package	最大值180mm圆柱形 Max.O 180mm Cylindrical	最大值155mm圆柱形 Max.O 155mm Cylindrical	最大值135mm圆柱形 Max.O 135mm Cylindrical	最大值120mm圆柱形 Max.O 120mm Cylindrical	最大值94mm圆柱形 Max.O 94mm Cylindrical
加捻卷装": twisted package	圆锥角度可过5° 57'conical ψ直径最大280mm max.diameter	圆锥角度可过5° 57'conical ψ直径最大280mm max.diameter	圆锥角度可过5° 57'conical ψ直径最大280mm max.diameter	圆锥角度可过5° 57'conical ψ直径最大280mm max.diameter	圆锥角度可过5° 57'conical ψ直径最大280mm max.diameter

安装图 Layout



DM-07/08/-09/-10/-11

机器节数 No.of sections	1	2	3	4	5	6	7	8	9	10	11	12
锭距207mm Gauge of spindle	20	40	60	80	100	120	140	160	180	200	220	240
锭距230mm Gauge of spindle	18	36	54	72	90	108	126	144	162	180	198	216
锭距258mm Gauge of spindle	16	32	48	64	80	96	112	128	144	160	176	192
锭距296mm Gauge of spindle	14	28	42	56	70	84	98	112	126	140	154	168
总重量(N) Total weight	13800	18600	23400	28200	33000	37800	42600	47400	52200	57000	61800	66600
总长度(mm) Total length	4520	6620	8720	10820	12920	15020	17120	19220	21320	23420	25520	27620

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