

4S SUSTAINABLE
SMART SOLUTIONS FOR
SPINNING
SUCCESS



CARD LC636 SX

Card with Highest Active
Carding Area & Cylinder Area



Versatile



Technology at its Best

LC636 SX Card is with Highest Active Carding Area & Cylinder Area.

Carding is a machine which shapes up the final quality level of the yarn to be produced. LC636 SX is with 1.5 metre working width and meets the demands of modern spinners.

Well carded is half spun.



Highly Efficient

Increased Production and Optimal Utilization of Resources. An increased production capacity of up to 50% can be achieved and it provides enormous benefits to the customer in terms of

- Better space utilization
- Saving in humidification
- Lower power for waste recovery system
- Reduced manpower
- Less power consumption

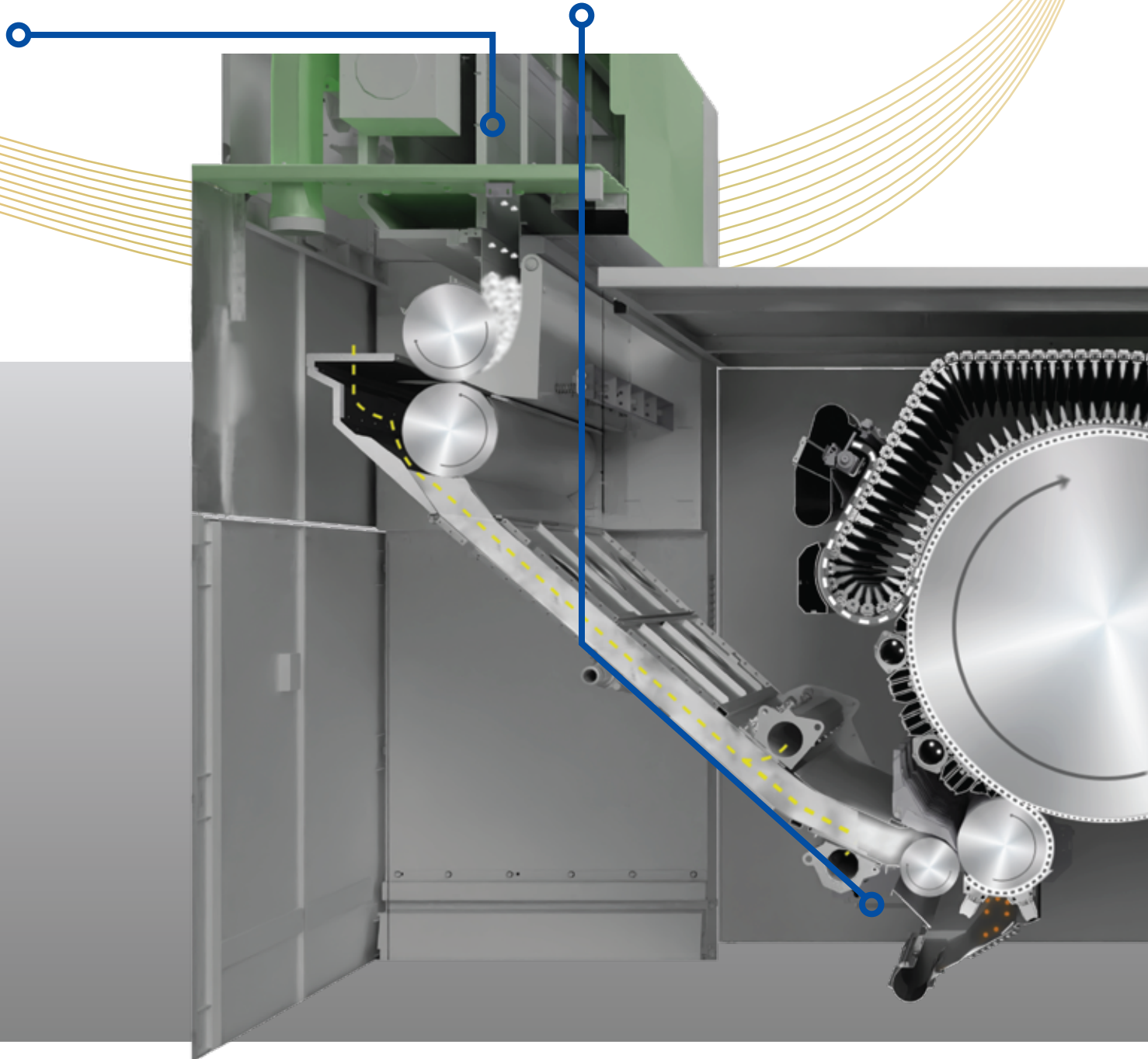
Specific Features

Chute LA7/7

- Pressure regulated chute for uniform feeding
- Optimized spring load arrangement for chute
- Feed control plate to maintain uniform tuft size
- Feed weight control through closed loop levelling system
- Direct feed through stainless steel delivery duct arrangement
- Delivery duct & AFD with swing arrangement

Feed & Licker-In zone

- Multilevel sensor for auto levelling
- Variable nipping distance
- Single licker-in arrangement
- Specially profiled arcual combing segment
- Unique bigger feed roller for controlled feeding
- External knife adjustment for easy licker-in dropping optimization
- Metal detector and earthing stop motion
- Smart control of card feed with encoder arrangement
- Inverter controlled drive for licker-in



Cylinder & Flat zone

- Highest Active Carding Area of 1.95 m² and Cylinder Area of 3.95 m²
- Aluminium alloy flats with highest no. of working flats (36 nos.) with patented brass clip flat tops
- Optimum cylinder diameter of 1017 mm leading to lower thermal expansion
- Cast iron cylinder with uniform setting for higher stability and better quality
- Optimal air extraction arrangement in Pre & Post Carding area with modular construction
- Replaceable type polymer end connector for flats
- Inverter controlled drive for cylinder
- Inbuilt monitoring of flat movement
- Single side suction arrangement
- Flat cleaning with primary and proven secondary arrangement of Philipson brush roller

Doffer & Delivery zone

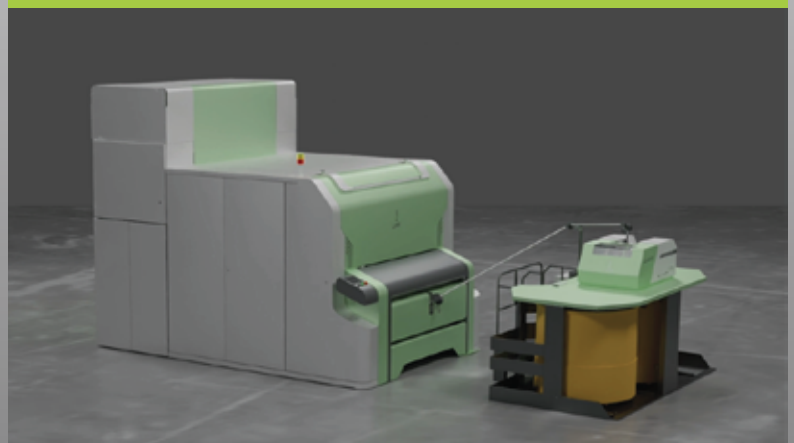
- High speed take up conveyor web doffing arrangement
- Linear 40" x 48" coiler with high speed can changer
- Fix Fil can changer for bigger can dia of 48" (optional)
- CDS (Card with Drafting System) for shortend Air-jet and OE Process (Optional)
- Automatic piecing aid
- Special profile RD under cover with sliding arrangements
- Inbuilt monitoring of doffer / brush roller rotation

Quality

- Online Quality Monitoring System (QMS)
- Feed weight control - Automatic
- Thick spot monitoring with alarm
- Multiple sensing at feed zone to regulate short term levelling

Construction

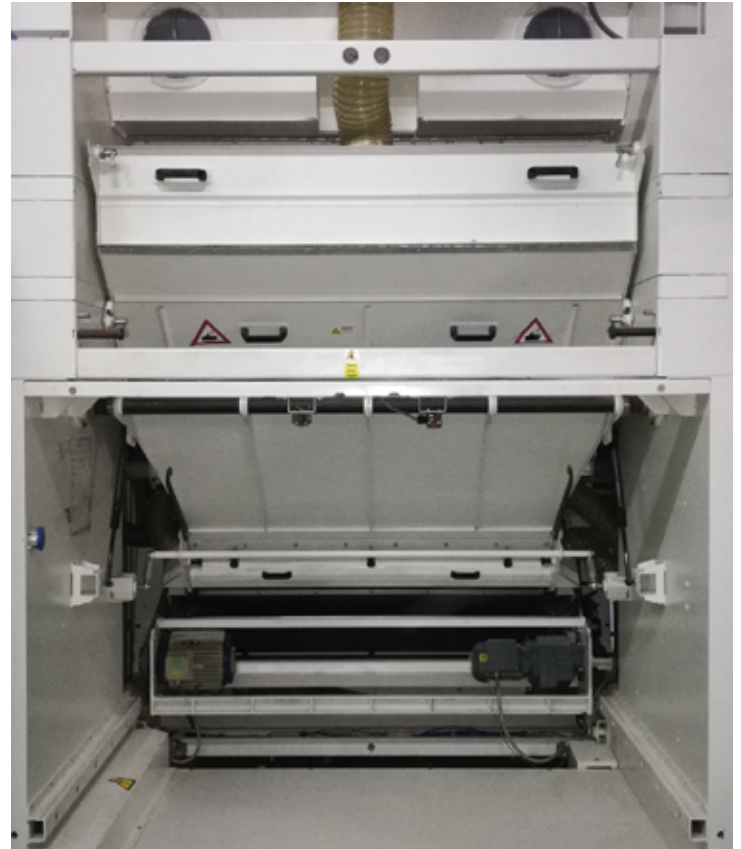
- Modular assemblies - Chute, Licker-in Zone, Flats, Delivery Zone & Coiler



Direct Feed to Card for Better CV%

The Chute LA7/7 is for continuous feeding to Card with proven pressure regulated principle which enables to maintain uniform batt weight and best CV% of the delivered sliver.

- Patented feed roller and opening roller with bigger diameter ensures intensive opening of tufts.
- The saw tooth profiled inverter controlled feed roller with unidirectional feeding arrangement ensures better grip of the feed material.
- Active compression on the fiber material resulting in optimal compact structure which is required for delivering highest sliver quality.
- Patented unique stainless steel delivery unit with swinging arrangement for easy maintenance and accessibility of Card feed zone.
- Less influence of climatic condition on the performance due to direct feeding to Card feed roller.
- Inverter control for chute fan to optimize chute material compactness based on raw material.
- Swinging arrangement of AFD for easy access of feed roller / opening roller during scheduled cleaning / maintenance activity.
- Feed weight control through closed loop auto levelling system.
- Split type perforated / plain sheet to control the material flow at top chamber based on position of the Card.



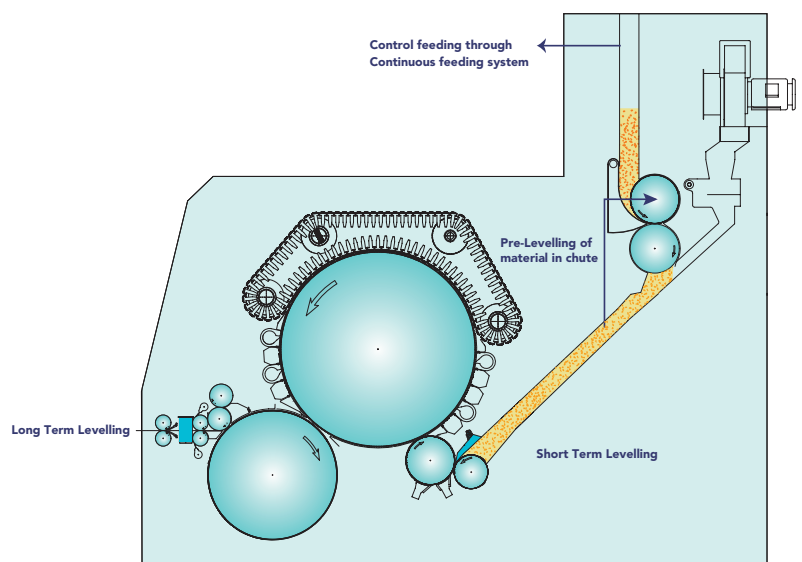
Feed Zone

The material feeding from feed roller to lick-in is through unidirectional feeding system which is vital to avoid fiber rupture and, the optimized feed roller with multiple feed plate arrangement ensures efficient fiber holding and uniform feeding of material to the lick-in. The metal detector along with multiple feed plate ensures the stoppage of card in case of foreign material entry and ensures the card safety.

Auto Leveller Arrangement

The pre-levelling of material is done in chute through pressure transducer by altering the chute feed roller speed.

- The feed thickness is measured by multiple feed plate and five level sensor and adjusts the material feed roller speed through encoder arrangement to maintain uniformity
- Delivery sensor measures the variation in the output sliver (correction will be given to the system for necessary auto adjustment in the feed roller speed).



Variable Nipping Distance

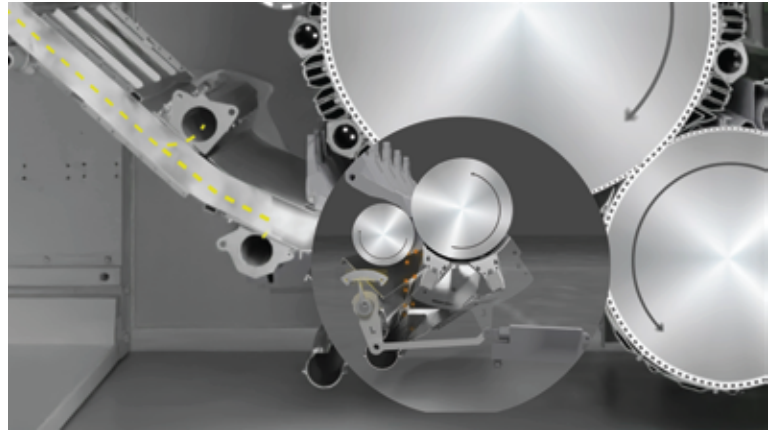
Fiber handling in licker-in zone decides the gentle fiber opening. In order to optimize, the nipping distance can be adjusted depending on the raw material fiber length for better opening.

**Unidirectional feed with flexible nipping distance*

Licker-in Zone with Arcual Combing Segment

Licker-in has two unique specially profiled arcual combing segments in which the wire points are aligned towards the line of the licker-in wire which helps in gentle opening and also prevents damage to the fiber. This also ensures effective clamping of fiber batt for opening and reduced tuft size which is the basis for reduced load to the main carding zone thus improving the carding quality.

- 1) Trash ejection Mote knives
- 2) Gentle fiber opening with arcual Combing segment
- 3) Gravity fall of waste



Higher yarn realization-Raw material saving upto 10700 USD/year

Upto 1% lint loss saving

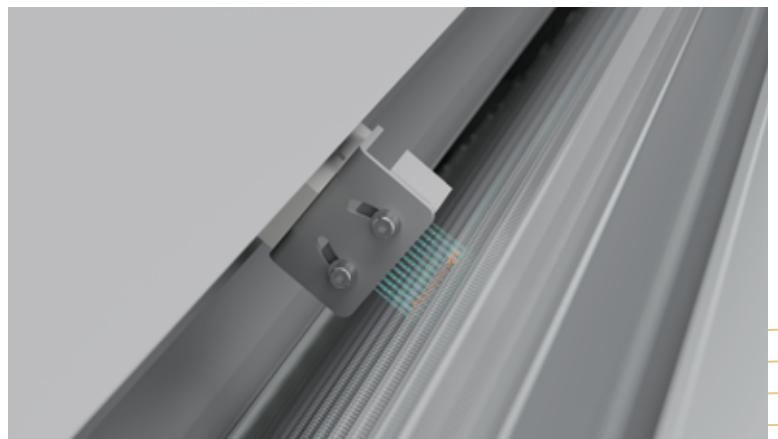
* Assuming production rate of 90kg/hr at raw material cost of USD 1.5/kg

Lesser Lint Ratio

- Two trash ejection knife are positioned below licker-in for effective removal of waste.
- The quality of waste is high and the lint loss is very less due to gravity fall & gentle opening of the fiber in the licker-in zone.
- The waste can be adjusted from outside with a lever mechanism also with linear actuator and the trash percentage can be varied depending on the raw material used.
- The suction duct is positioned below the licker-in to collect the waste which fall by gravity.

Flats Cleaning Arrangement

- The flats to be presented clean for every cycle, is done by a unique aluminium extruded oscillating stripper with stationary comb arrangement.
- Primary and proven secondary arrangement of Philipson brush roller to ensure effective cleaning of flats.
- Dedicated monitoring arrangement to ensure removal of flat waste.
- Easy maintenance kit for easy movable / removal of flats during scheduled maintenance.
- Flats air cleaning system (Optional)

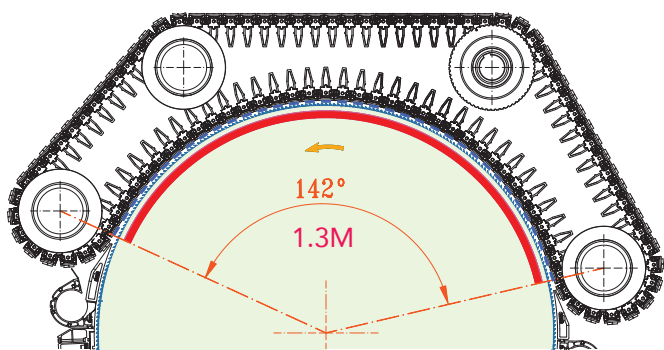


Active Carding Area

The majority of the area in the Card LC636 SX is occupied by technological elements like Pre carding, Flats & Post carding. This is technically mentioned as active carding area where the technological elements occupies 82% of the cylinder surface.

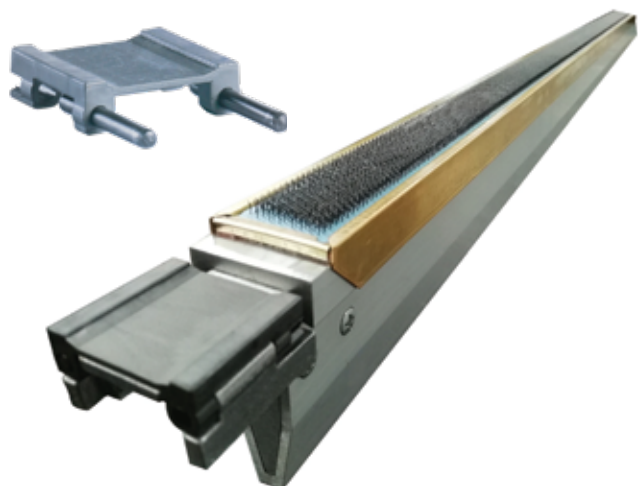
The REAL Carding Area - Active Flat Area

The actual carding action takes place between revolving flats and the cylinder. Card LC636 SX has 101 total flats out of which 36 flats are in working position occupying 142 degrees of cylinder periphery which works out to be 1.3 m. Hence, the total active carding area covered of working flats is 1.95 m².



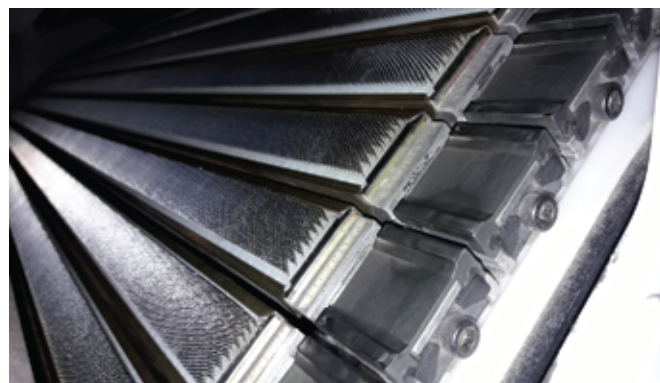
Flat Construction

The flats are mounted on a light weight aluminium alloy profile with patented brass clipping to ensure minimum variation throughout the length of the flats, negating the impact of thermal expansion.



Flats with Replaceable Polymer End Connector

The unique feature of this machine is that it has replaceable polymer end connector to get accurate level of heel & toe. Provision is given for end milling in replaceable polymer end connector to get precise cylinder to flats setting.



On-line Quality Monitoring System (QMS)

QMS is designed to monitor instant sliver quality with machine stop control. Trend chart is available to study the consistency level in continuous process. Correction factor can be given to match online & offline values.

The parameters measured and monitored are:

- Number of thick places & U% value
- 1M, 5M, 10M & 100M CV Values
- Chute operating pressure
- Graphical representation
- Maximum allowed set limit can be specified for CV%





Pre & Post Carding Zone

The stationary flats and suction module are independent with modular construction for achieving an accurate setting throughout the width of the card.

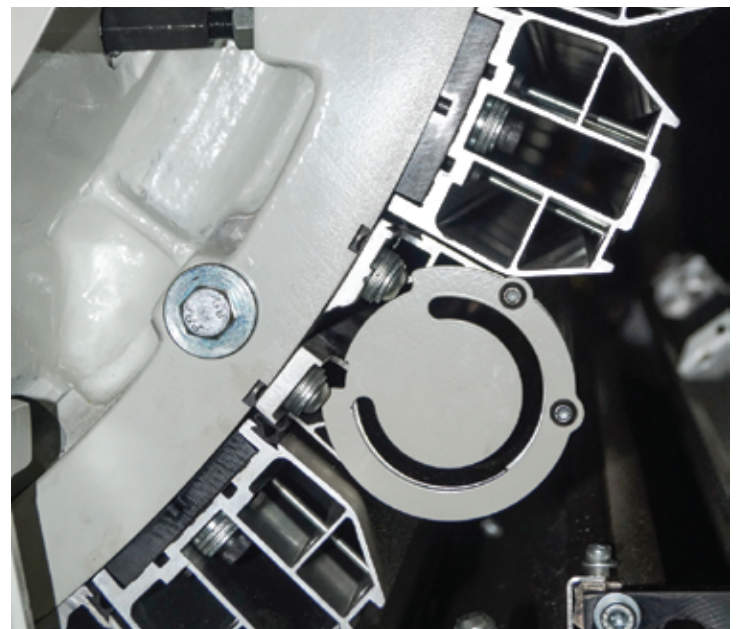
Maximum of 10 Flats in the Pre Carding zone and 8 Flats in the Post Carding zone can be accommodated without knife arrangement depending on the raw material processed.

Settings for these elements can be varied easily by replacing the shims of different thickness.

Additionally, 2 knife arrangement option is also available in Pre and Post Carding zone for the application where feed material contains harder trash particles.

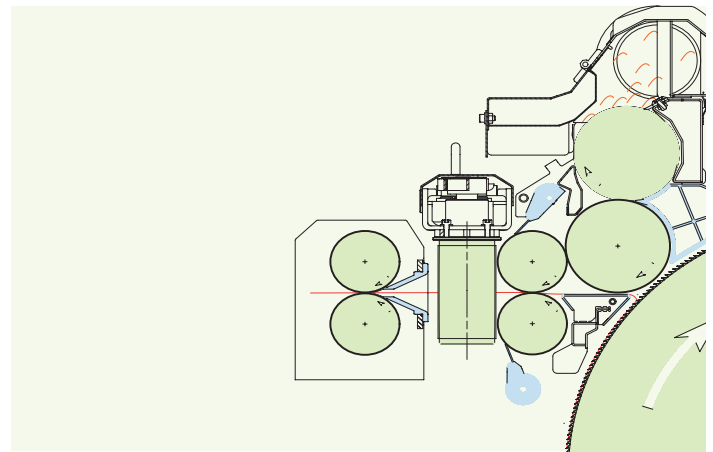
SFL Options - 6F + 2K / 8F + 1K

SFD Options - 4F + 2K / 6F + 1K



Delivery Zone

Effective web transfer is ensured by saw tooth take-off roller and a pair of smooth web detaching delivery roller. The web is collected by a pair of conveyor aprons, and the condensed web will pass through a pair of scanning rollers. Advanced timing belt drive ensures the machine's quiet running even at higher delivery speed. Clearer brush located above the redirecting roller strips the fiber from the redirecting roller during initial web piecing.



Linear Can Changer - Quality Ensured with Perfect Coiling

Linear can changer enhances the machine efficiency by 1% through high speed can changer mechanism with positive sliver cutter arrangement. This eliminates sliver variation occurring due to reduction in delivery speed during can change in other conventional can changer and contributes to the increase in production at the same run time of the machine.

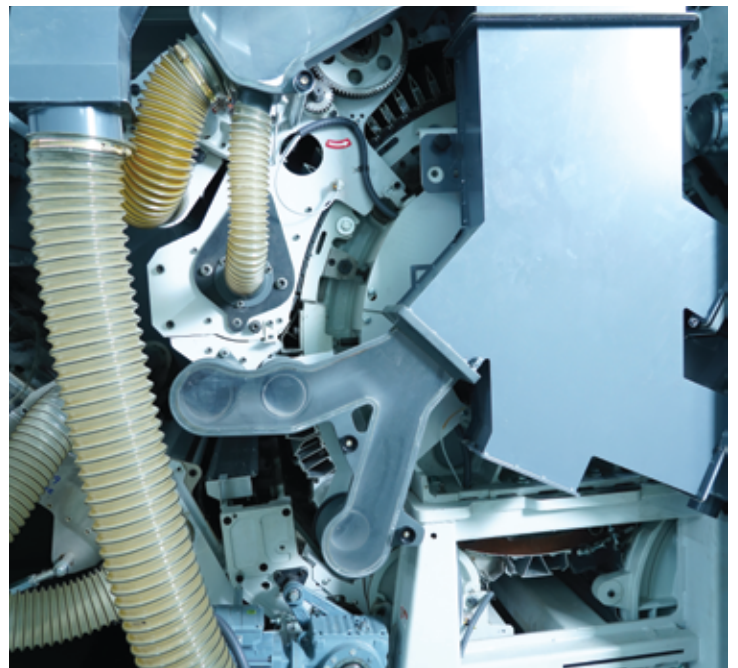
Motion sensor arrangement for effective sliver monitoring.

Production increase of
7400 kg/year*

*Assuming 22.5 hrs run time with
production rate of 90 kg/hr

Continuous Waste Collection System (WCS)

- The WCS is designed with specially profiled FRP duct (Fiber Reinforced Plastic) for continuous collection of waste.
- The main purpose is to avoid fiber accumulation in the ducts as it may affect the suction pressure. All the individual points are routed to the central ducts ensuring user friendliness and cleanliness of the card.
- Various options of waste collection systems available as listed:
 - All together upwards
 - Licker-in separate & others together upwards
 - All together downwards
 - Licker-in separate & others together downwards
 - Flats separate & other together upwards
- Digitally monitored WCS suction pressure in display for customized setting with alarm.

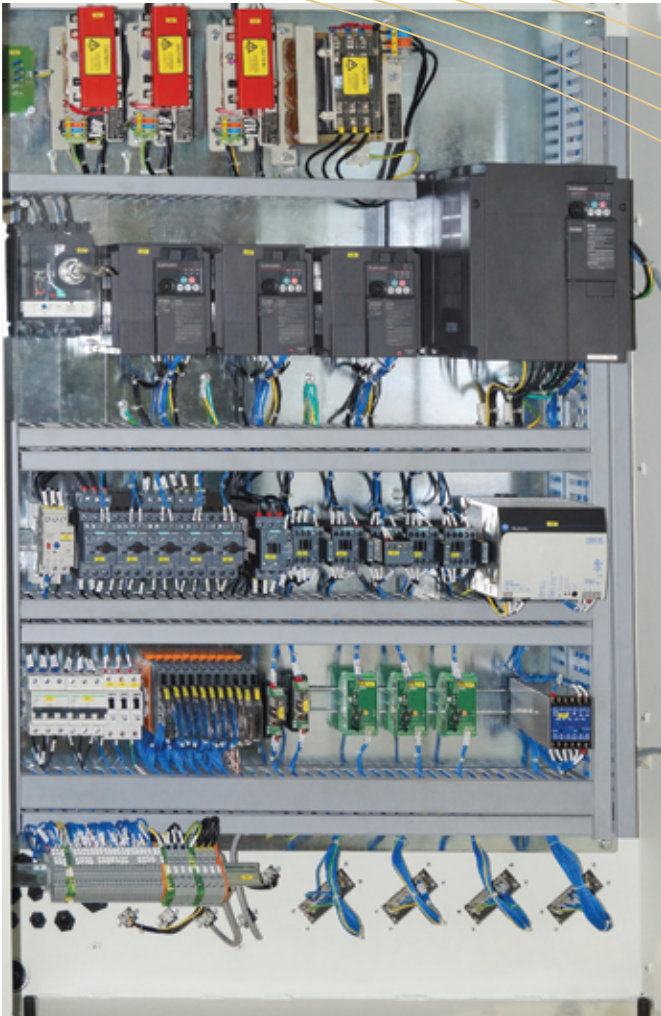


Energy Saving Electrical System

The Card LC636 SX has been designed and developed for lesser energy consumption. The dynamically balanced carding elements (cylinder, lick-in and delivery rollers) with inverter drive and energy efficient motor helps in lesser power utilization.

Electronically Controlled Cylinder Brake System

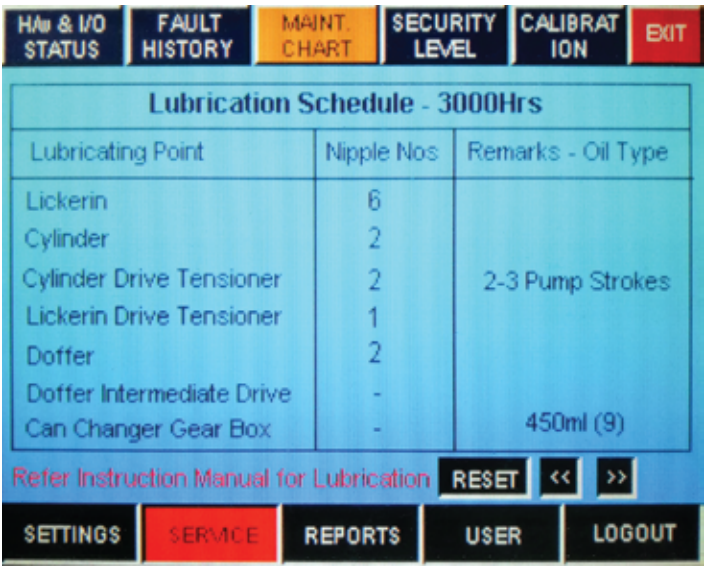
The cylinder stoppage is carried out by Electronically Controlled Cylinder Brake System. This helps in reduction of machine downtime where cylinder stoppage is done for carrying out any maintenance activity.



Maintenance through HMI

The key maintenance schedules like grinding, wire replacement and lubrication activities are available in the display for customized setting of time period with alarms.

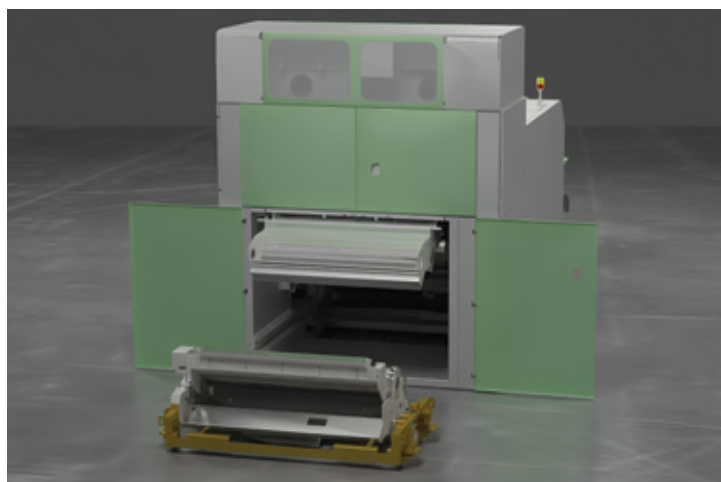
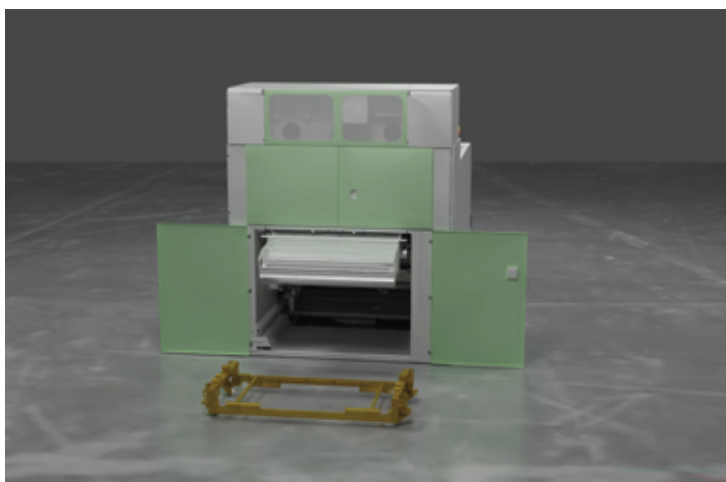
Service mode for easy maintenance activity



Modular Construction

The machine with modular construction guarantees operator friendliness and minimum installation time.

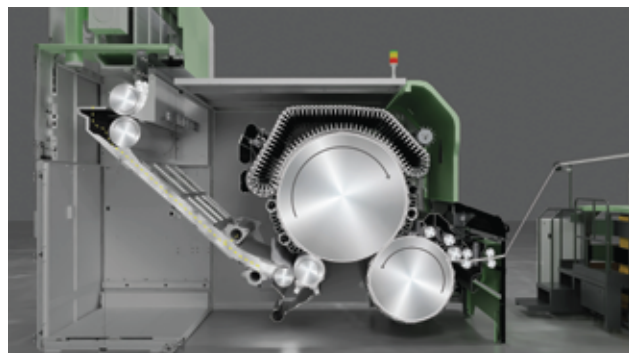
The Licker-in and Doffer module can be easily taken out for clothing and with the availability of spare modules, downtime during maintenance can be prevented and thus enhances machine utilization.



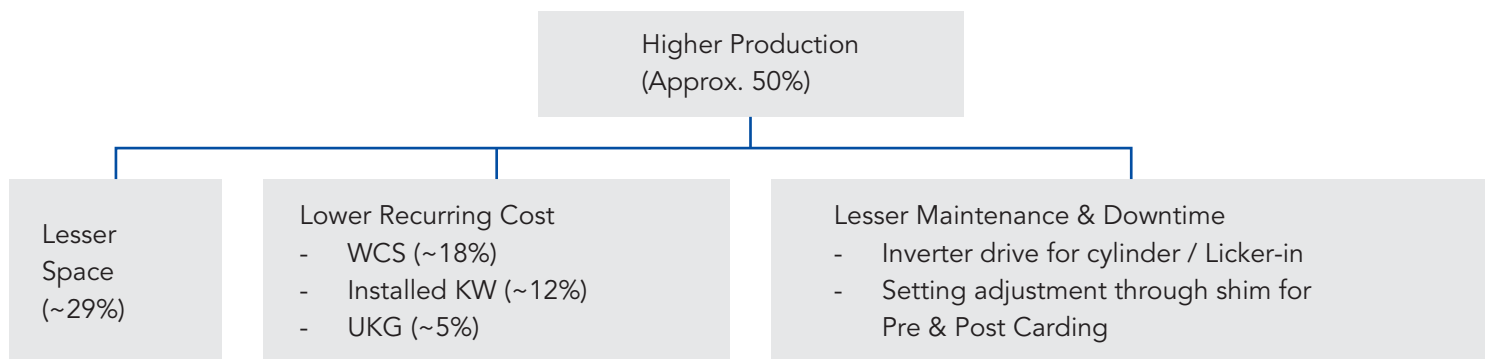
Card with Flexible Options for MMF Process

The Card is equipped with stainless steel ducts for material transport and in chute top and bottom chamber for free flow of material. The following flexibility is also available to suit Man made fiber process

- Variable nipping distance for gentle fiber opening
- Interchangeable and addition of Pre & Post Carding elements and knife positions
- Specially coated coiler
- Unique wire profiles for effective Carding action
- High speed take up conveyor web doffing arrangement
- Inverter control for variable speed licker-in
- Inverter control for variable speed cylinder
- Optimized heel and toe for flat arrangement
- Special profile cover plates in SFL / under casing / SFD



Benefit for Customer (1.0mts Vs 1.5mts)



CDS (Card with Drafting System)

Card LC636 SX can be offered with Integrated drafting system. The CDS comes with 2 over 2 pneumatically loaded drafting system with servo control. The Intelligent auto levelling system ensures the consistent quality of the sliver delivered from Card. The maximum delivery speed of 700 MPM is possible with CDS. The drafting is equipped with easy adjustment of load for drafting rollers. The CDS can be offered for shortened Air-jet and Open End process and it can be retrofitted in the existing machines.

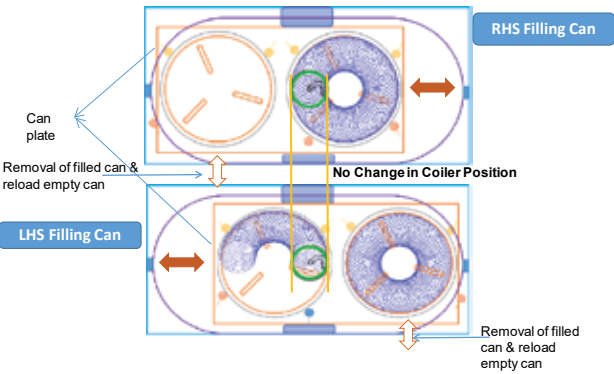
The unique design of CDS ensures quicker and effective piecing which increases the machine efficiency. The levelling of sliver takes place through the speed change of front drafting roller and the hank is ensured through the additional sensor positioned at delivery. The drafting unit consists of in-built suction system with stripper arrangement for effective removal of microdust.

Specification	CDS
Drafting front roller	Variable
Drafting back roller	Constant
Speed change	Front roller, Calender roller and Coiler



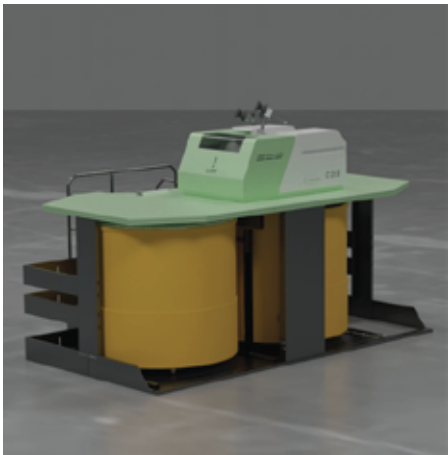
Fix Fil Can Changer

Card LC636 SX can be offered with the delivery can size dia of 1200mm. The unique concept of can changer is developed to handle bigger can for minimizing space. In the Fix Fil concept the coiler is strategically positioned for minimal movement of can which helps with reduction in can movement and space. The can movement takes place inside the machine which is possible by dual can plate with individual drive arrangement. The machine comes with inbuilt doffed can monitoring sensor which ensures safety.



Advantages of Bigger Can

- Mean time between assist can be increased upto 50%, so one person can handle more Card and Draw Frame.
- Up to 33% fewer can transport up to Draw Frame, as it runs longer in Card and creel of Draw Frame.
- Lesser creel changes means lesser sliver piecings result in upto 33% fewer error locations and thus improves quality
- Increased efficiency upto 2% in Draw Frame, requires lesser can changes as it runs longer in Card and creel of Draw Frame



Spinconnect 2.0

Digital Automation our Passion

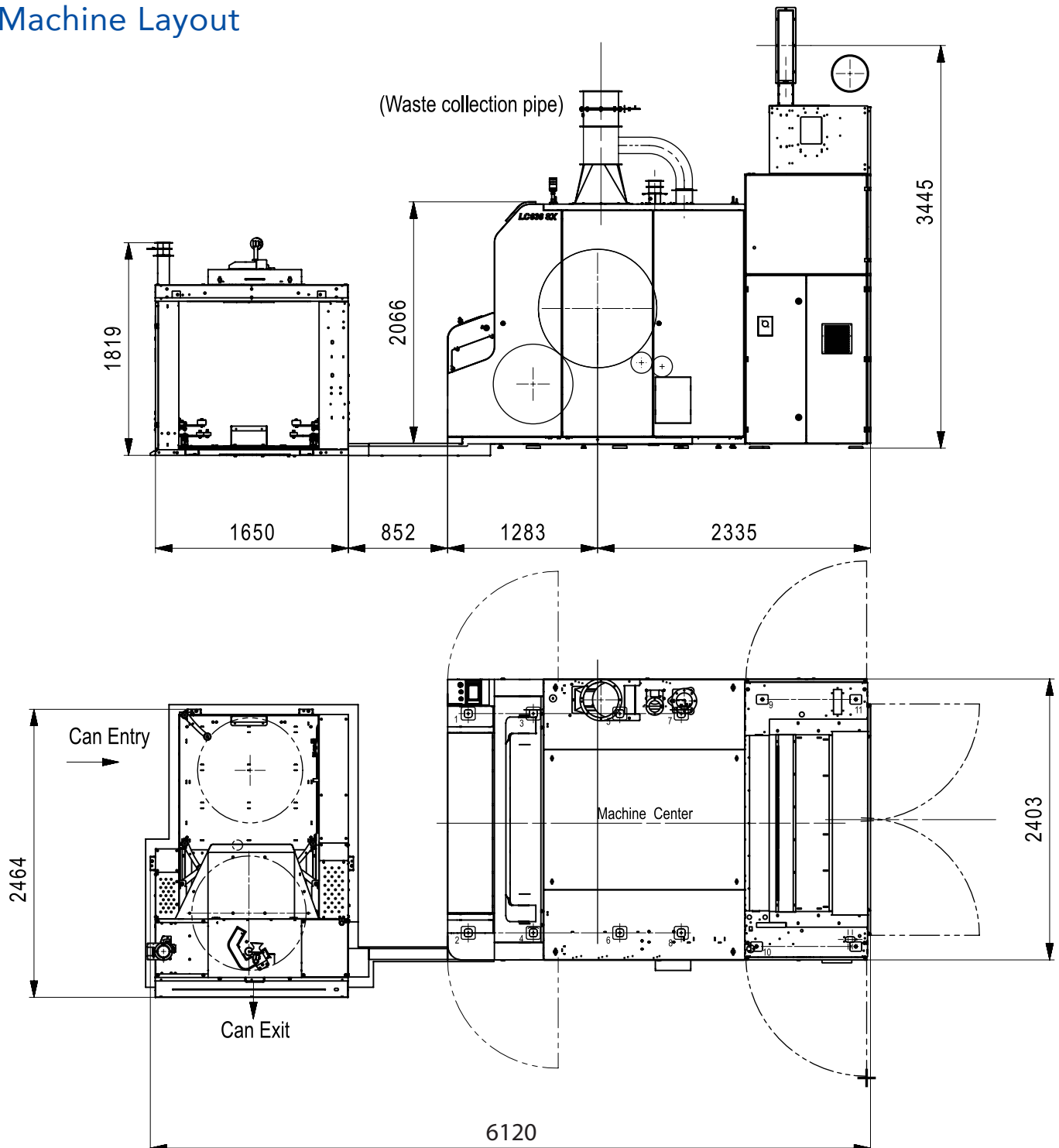
Card LC636 SX can be integrated with Spinconnect 2.0, a web based monitoring and control application. The HMI details are transferred through Wi-Fi / LAN connection and all the parameters can be viewed and controlled from a centralized computer.

- Editing of process parameters from a central location for better process control and lot changes across machines.
- Remote viewing of machine PLC status from any location for trouble shooting and for software upgradation.
- User defined reports and charts for analysing the Card LC636 SX performance can be generated for further improvement.
- Predefined shift-wise, daily, weekly, monthly reports can be sent through mail to respective users.



CARD LC636 SX

Machine Layout



Technical Data

Material	:	Cotton, Blends & Man-Made Fibers
Sliver Count Range	:	0.04 – 0.10 Ne
Feed Weight	:	650 - 950 g/m
Working Width	:	1500 mm
Can Size and Changer	:	40" x 48" Linear Can Changer
Waste Removal	:	Automatic Waste Evacuation System
Auto Levelling	:	Both Long Term and Short Term as STD Equipment
Flats Arrangement	:	Total Flats : 101
No. of Working Flats(Real Carding)	:	36
Pre - Carding	:	SFL 6F+2K / 8F + 1K
Post - Carding	:	SFD 4F+2K / 6F + 1K
Exhaust Air Requirement	:	1.3 m ³ /sec
Installed Power	:	23.1 kW
Compressed Air Requirement	:	0.7 Nm ³ /hr @ 6 bar



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