TRASCAR - UTIT TEXTILE AUTOMATION

With requirement of untouched products, smooth handlings of the products and with start of industrial labors in India, textile spinning mills are looking for automations in various operations. The most common automations in spinning mills are automating handling of roving bobbins followed by automatic handling of winding cones & packing. These are areas for cost savings and besides the obvious savings in labour it gives a substantial contribution towards reducing the risks of poor quality and leads to an untouched final product.

AUTOMATIC ROVING BOBBIN TRANSPORTATION

The roving bobbin is one of the most delicate intermediate products to handle due to two specific reasons:

- The roving wound round the bobbin is completely unprotected and is therefore highly liable to damage through impact, bad handling, stripping or dust and fluff collection. Each and every defect in the roving is transferred to the yarn and this cannot be remedied in any way.

- Secondly huge numbers of roving bobbins need to be handled and with longer Ring frames the transport distance of the roving bobbins from roving frame to ring frame is increasing. Again with trolley type of bobbin handling there is serious risk of damage to Ring frame auto doffing system.

UTIT can provide following different solutions in the field of bobbin transportation:

✓ Random Creeling - Roving Bobbins keep on moving in particular circuit in between pre decided set of roving frames and ring frames - Fix Flow. In this type of system, roving bobbins are available all the time to the ring frame operators in the last extra row of the ring frame and operator just need to exchange the bobbins from this extra row to working row.

✓ Block Creeling - Automatic / Semi-automatic / Manual. - Train containing certain number of Ring frames usually number of spindles in one roving frame is moving from roving frame to reserved parking system and then on call moves to ring frame reserved creel where operator need to transfer the bobbins from reserved creel to working creel in block. In this system, Roving bobbins from any roving frame can be transferred to any ring frame - Flexi Flow.

✓ Total Creeling - Train containing roving bobbins equal to one row of the ring frame creel is moving from roving frame to reserved parking system and then on call transferred to ring frame creel. In this system complete one working ring frame creel row is replaced with the full bobbins.

Features of TRASCAR-UTIT Roving Bobbin Systems

1. U.T.I.T. Systems is capable of running continuously for a long time without any particular problems thanks to its robust construction made of steel.

2. Each Roving bobbin in the train is supported by four steel bearings - two in horizontal and two in vertical direction for smooth movement and no any extra load at any points either in curvature part or moving up-down in the circuits.

3. U.T.I.T. chain can have several gauges: 120, 165, 180, 200, 210 225 mm. meaning maximum flexibility, depending on Customer's requests and needs;

4. U.T.I.T. overhead chain has the minimum bending radius that go from 400 to 650 mm. The chain enables to connect more floors of a plant, making 15°/20° climbs, with also the help of small dimension "spirals". This chain can also perform 90° vertical climbs (obviously, when it is permitted by the material that has to be delivered);

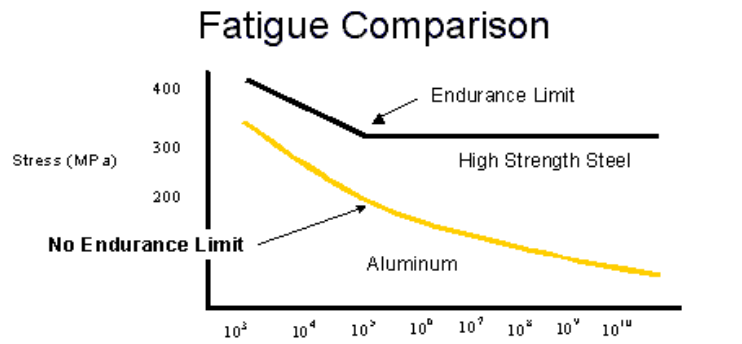
5. U.T.I.T. systems can also be supplied with automatic chain bearing units and chain cleaning devices;

6. U.T.I.T. is able to offer the customer a 4th generation Bobbin Stripper.

The key features of the systems that give an edge over Competitors

Metallurgy:

UTIT has opted to use Steel for its tracks and sealed bearings. The reasons for this are not hard to find. The following graph will explain why the physical and chemical properties of steel ensure that it is the appropriate choice for a top quality bobbin transportation system.



Aluminum 5052-O	= 124 MPa at 50(10^7) Cycles
Dual Phase 800	= 307 MPa (Endurance Limit)
TRIP 600	= 336 MPa (Endurance Limit)

Source: Autosteel Partnership, Dofasco Co.

Steel has high the endurance limit and hence can sustain higher point force. During the working cycle, a "full bobbin train" positions itself on the ring frame and the operator replaces the empty bobbins on the creel with the full ones. As each bobbin holder can weigh up to 5 kgs, a transportation system of steel help withstand dynamic force.
Further, the force needed to pull the 13.8 meter long train which carries 66 bobbins will be less due to less friction between the steel bearings and the steel track vis-à-vis Bakelite bearings. As unlike Bakelite, steel can be given a smooth finish which helps in reducing friction.

Steel is strain rate sensitive and has higher strength increases and consequently higher energy absorption at a given part weight. The figure below show's results from a study conducted at the Ford Scientific Research Lab, USA on different material grades.

CONE TRANSPORT SYSTEMS: PALLETIZATION, PACKAGING AND AUTOMATIC WAREHOUSE

Installing Cone Collecting, Transport and Palletizing System means a considerable turning in Spinning Automation Process. The automation interfaces to productive line and involves Cone handling and packaging in a full autonomous way. In this phase of Industrial Automation, Trascar-

UTIT solutions allow customer to follow in real time a productive cycle and significantly reducing the costs of labour, any production stop and deliver completely untouched final packaging.

A Centralized Palletizer is equipped with several palletizing stations. The number of stations can be chosen according to the manufactured products varieties or the number of productive machinery.

The Palletizer size depends on the number of palletizing stations. A direct palletization can be installed directly in front of production machinery such as winder, open-end, vortex, etc... Palletizer moves in front of machines and directly interfaces with these machines.

AUTOMATIC VEHICLES AGV

They can manage the pallets sorting among the different productive / storage areas in a fully automatic way without any personnel support. The highest flexibility of these automatic vehicles allows carrying out the most complex cycles

AUTOMATIC WAREHOUSE FOR PALLETS

It is suitable to satisfy the need of optimizing a warehouse space; Trascar-UTIT manufactured lots of automatic warehouses for Customer's different storage needs.

AUTOMATION INSTALLATIONS FOR AUTOMATIC PACKAGING SYSTEMS

Pallet packaging line completes a palletizing system, providing automatically to Wrap, Weigh and Label a package.