*Completion of a chain conveyer with steel plates and a waste reels splitter for the Russian customer*

*Conveyer back part - roller-type line*

**Conveyers** in paper mills are generally intended for conveying of waste paper, bales of chemical pulp or bags with chemicals to pulpers, for removal of rejects from cleaners, conveying of dry broke to pulpers or for paper reels handling.

Waste paper can be loaded as loose material or in bales. These bales can be in bulk or pressed. Chemical pulp can be conveyed in bales with or without packing. The way of conveying can be adapted to required charge formulations and processing. As to their capacity these conveyers are designed in accordance with pre-specified volumes for smooth start-up at full loading.
Waste paper, chemical pulp or generally conveyed materials are to be loaded on the ingoing part of the entire conveying system. According to the given conveyer type loaded materials can be conveyed being supported by idler support structures (with or without conveying belts), by means of chain conveying systems (with or without conveying belts), special chains or other carrying elements. In case of an inclined conveying system loaded materials can be fixed against contingent slipping on the given carrier. Intended carriers can be made of metal (U- or L-shaped) or of vulcanised rubber. Conveying systems can consist of one conveyer or of an entire conveying line.

## Primary parts, material

According to the pre-specified carrying and handling equipment any conveying system consists of:

- **loading/ingoing part,**
- **carrying part,**
- **unloading/outgoing part.**

These parts may differ from each other in their shapes and modifications. The ingoing part may comprise a loading conveyer modified according to particular requirements (with belt, steel plates, chain-belts, rollers etc.); an elevator; handling platforms; bales turners; a preparatory storage system etc.
Materials used for conveyers respect customer's requirements, required linking to paper production technologies (such as cleanliness in ambient spaces) and on-site layout.

Machine design and work safety are in compliance with EU standards.

*Illustrative photo: outgoing chain-belt conveyer*

- automation - reduction of operating costs
- reduction of accident occurrence and rejection rate
- limitation of failures caused by human factor

**Advantages**

## Conveying line layout

Depends on:

- sorts of material to be conveyed,
- operating mode of related equipment (periodical, continuous) if conveyed to pulpers,
- requirements for attendance, operation and handling,
- type of storage system,
- requirements for logistics,
- requirements for process automation,
- process technologies, technological line layout etc.

## Types of offered conveyers

- **chain-belt conveyers** - for bales of chemical pulp and waste paper,
- **roller-type conveyers without belts** - for bales of chemical pulp and paper reels,
- **roller-type conveyers with belts** - for bales of chemical pulp and waste paper or other sorts of dry broke,
- **elevators** - for bales of chemical pulp and paper reels,
- **special chain conveyers** - for cutting and removal of binding wires on bales and bales conveying,
- **special chain-belt conveyers with push bars** - for cutting and removal of binding wires on bales of chemical pulp and waste paper,
- **floor chain-belt conveyers** - for waste paper (loaded as loose material or in bales),
- **special chain conveyers** - for jumbo rolls,
- **conveyers intended for chemicals**,
- **conveyers intended for dewatered rejects**,
- **floor conveyers** - for bales loaded on pallets or for single bales,
- **chain conveyers with steel plates** - for waste paper (loaded as loose material or in bales),
- **chain conveyers with steel plates and waste reels splitter** - for waste paper reels handling, splitting and conveying of waste paper,
- **special conveyers** according to particular customer's requirements.

Any conveying system is projected according to on-site technology, process requirements, line capacity (tpd) or according to sorts of material to be conveyed. Due to this fact any equipment is to be projected in accordance with specific customer's requirements for every paper mill individually.

*Ingoing chain conveyer with pneumatic unwiring*

## Additional equipment for conveying lines

- mechanism for pneumatic wire cutting,
- equipment for automatic wire cutting and manual or automatic removal of wires,
- bales turners for chemical pulp (for detection of impurities on packing),
- elevators,
- elevators with pallets and bales separation,
- roller-type siding devices,
- turntables,
- handling equipment for tipping and batching of bags with chemicals,
- height-adjustable tables hydraulically controlled,
- bar-code readers and imprinters,
- metal detectors,
- automatic systems for chains lubrication,
- gravity chutes, lines etc.

*Handling equipment for tipping of bags with chemicals*

## In terms of control and automation

- autonomous control system,
- control system linked to master control,
- manually controlled conveying equipment with automatic control of some conveyer parts (optical barriers, lubrication, loading speed, tipping speed etc.),
- manually controlled conveying equipment with control boards,
- conveying equipment without control boards (conveyers linked to connecting boxes),
- conveying equipment without control boards (without connecting boxes).

## Standard accessories

According to types of conveying systems:

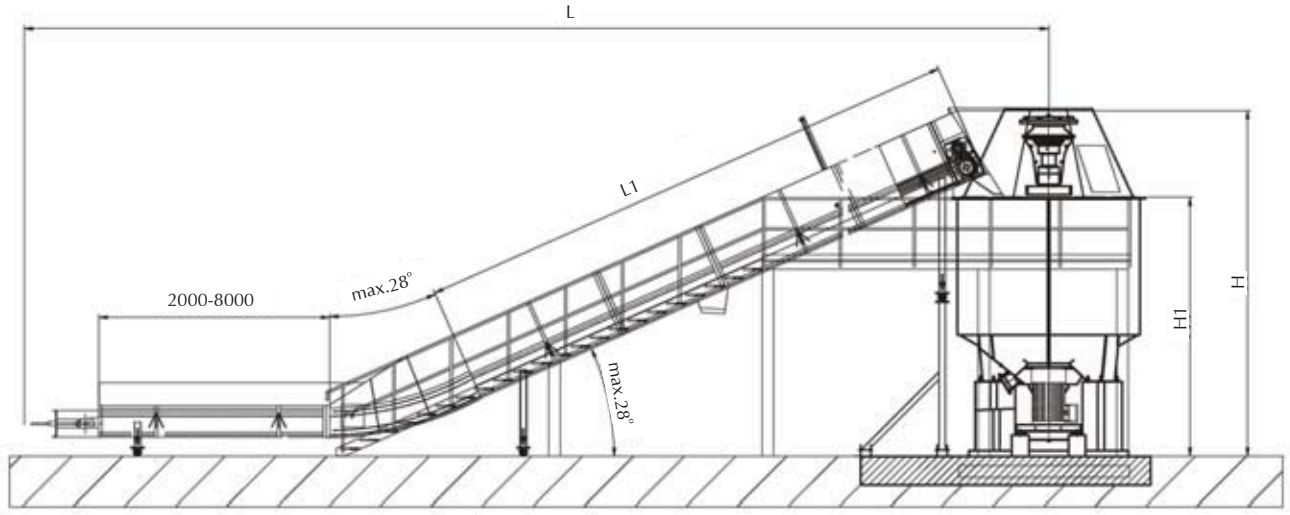
- manual lubrication of chains,
- safety elements (STOP push-buttons, grips, cable control and switching-off),
- electric part, installation of electric motor without connection to terminal board.

**TECHNICAL PARAMETERS**

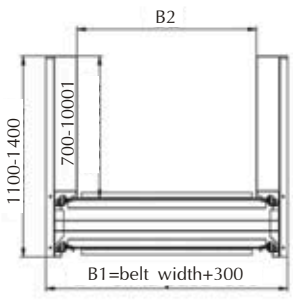
| Type of pulper | L (mm) | L1 (mm) | H (mm) | H1 (mm) | B1 (mm) | B2 (mm) | B3 (mm) | Speed (m/min) | Max. carrying capacity ($kg/m^2$) | Power output of electric motor (kW) |
|---|---|---|---|---|---|---|---|---|---|---|
| **LCV-14** (pulp) | ~16 800 | 9 000 | 6 100 | 4 550 | 1 500 | 1 060 | 1 200 | 1 - 10 | 400 | 2,2 - 7,5 |
| **LCV-14** (waste paper) | ~16 800 | 9 000 | 6 100 | 4 550 | 1 500 | 1 265 | 1 400 | 1 - 10 | 400 | 2,2 - 7,5 |
| **LCV-20** (pulp) | ~21 500 | 9 200 | 6 500 | 4 830 | 1 700 | 1 060 | 1 200 | 1 - 10 | 400 | 2,2 - 7,5 |
| **LCV-20** (waste paper) | ~21 500 | 9 200 | ~6 500 | 4 830 | 1 700 | 1 265 | 1 400 | 1 - 10 | 400 | 2,2 - 7,5 |
| **LCV-30** (pulp) | ~23 000 | 11 800 | 7 700 | 5 900 | 1 500 | 1060-1150 | 1 200 | 1 - 10 | 400 | 2,2 - 7,5 |
| **LCV-30** (waste paper) | ~23 000 | 11 800 | 7 700 | 5 900 | 1 700 | 1 265 | 1 400 | 1 - 10 | 400 | 2,2 - 7,5 |
| **LCV-50** (pulp) | ~24 000 | 12 100 | ~7 800 | 6 075 | 1 700 | 1 265 | 1 400 | 1 - 10 | 400 | 2,2 - 7,5 |
| **LCV-50** (waste paper) | ~24 000 | 12 100 | ~7 800 | 6 075 | 2 000 | 1 565 | 1 700 | 1 - 10 | 400 | 2,2 - 7,5 |

*Note: Lengths and weights of conveyers are informative only. Conveyer length depends always on particular layout, used PM technology, customer's requirements, conveying angle and pulper location. Maximum conveying angle should be up to 28°. Anyway, we recommend using angle ranging from 24 to 25°. Upon customer's request we are ready to project conveying and handling equipment with required properties.*

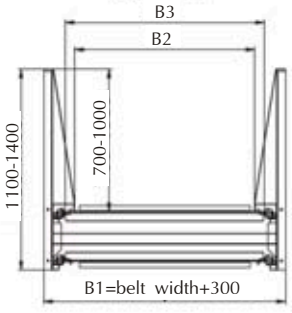
## *CHAIN-BELT CONVEYER INTENDED FOR PULPERS LCV - WASTE PAPER CONVEYING*

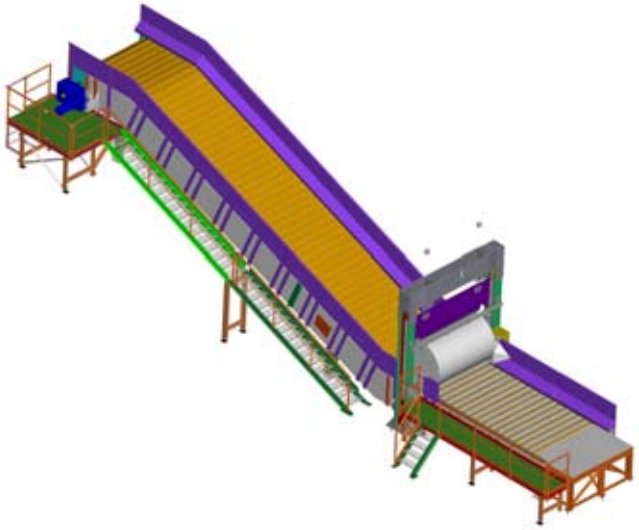



CROSS SECTION - INCLINED PART STRAIGHT GUARD




CROSS SECTION - INCLINED PART INCLINED GUARD

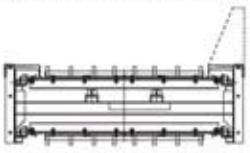


*Design of conveyer with integrated waste reels splitter*

## *LAYOUT EXAMPLES OF CHAIN-BELT CONVEYER*

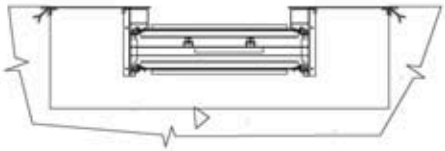
CROSS SECTION EXAMPLE - HORIZONTAL PART



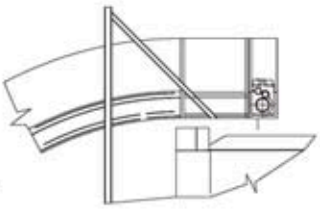
EXAMPLE OF CARRIER WITH CLAWS FOR BALES UNWIRING

X=300-1500

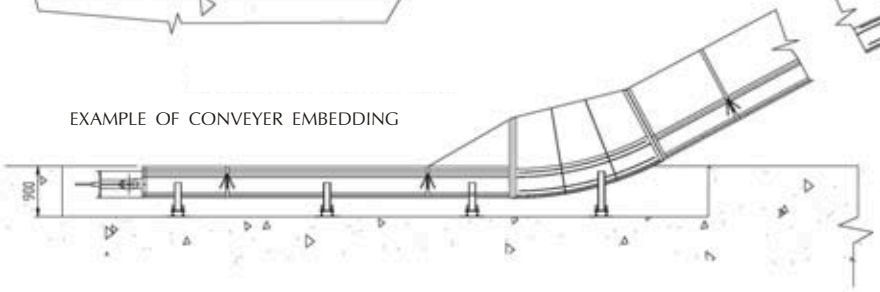
CROSS SECTION - HORIZONTAL PART - EMBEDDED CONVEYER



EXAMPLE OF CONVEYER WITH CONTINUOUS CROSSING



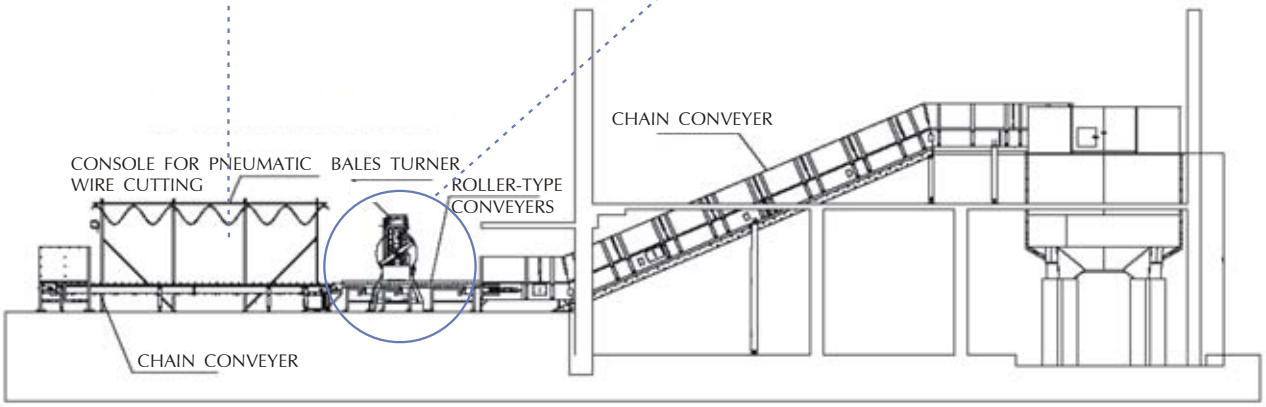
EXAMPLE OF CONVEYER EMBEDDING



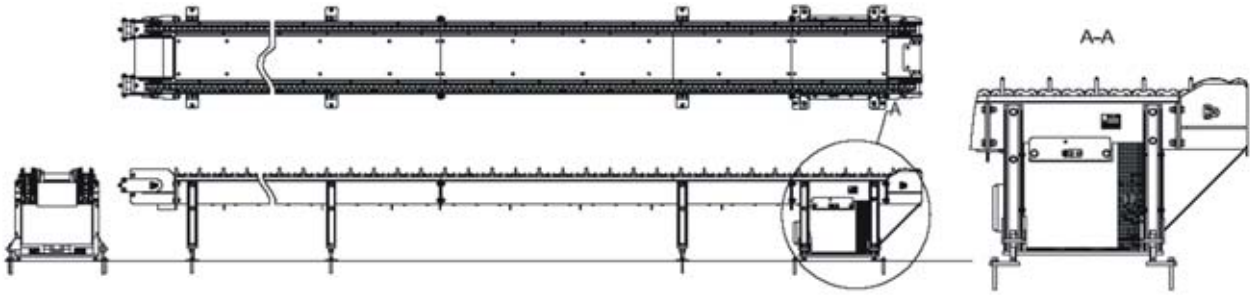
## *EXAMPLE OF CHEMICAL PULP CONVEYER*

*Console for pneumatic wire cutting*

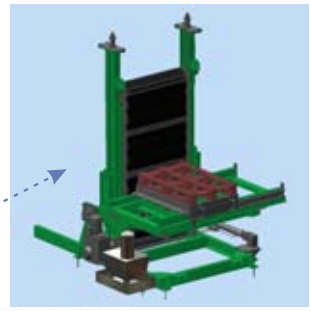
*Bales turner*

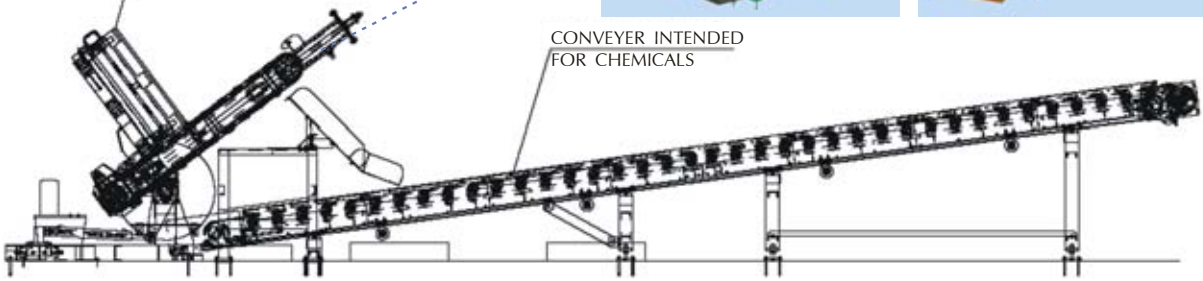


## EXAMPLE OF CHAIN CONVEYER FOR HANDLING AND CUTTING OF CHEMICAL PULP BALES



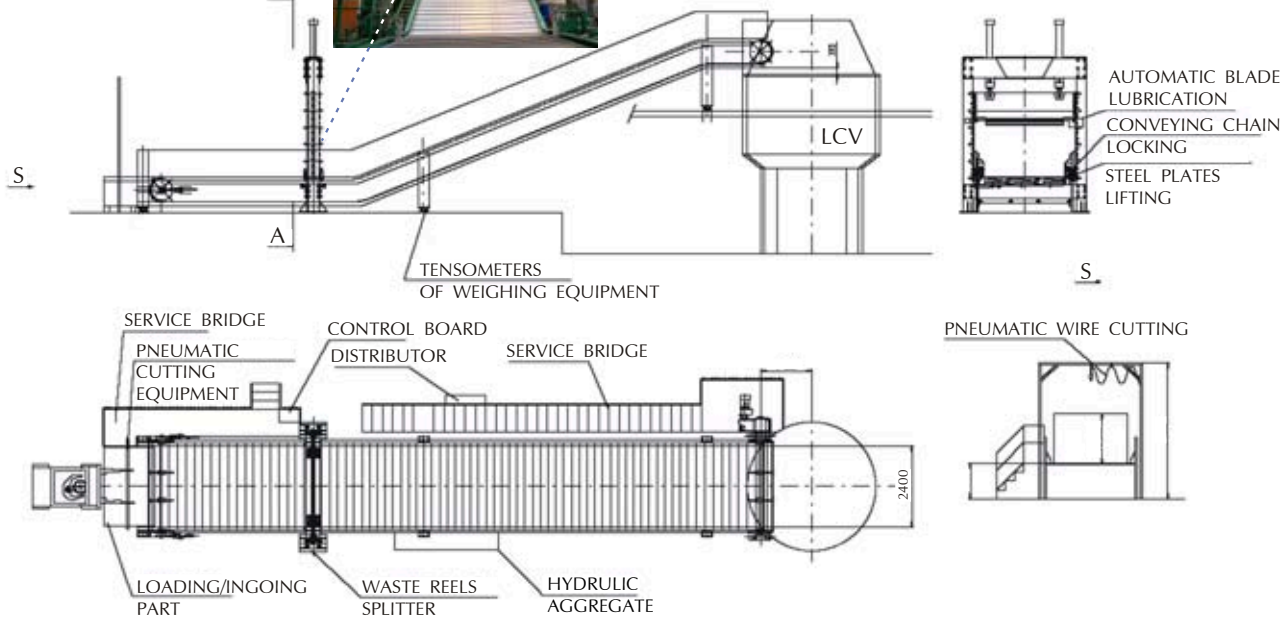

## EXAMPLE OF CONVEYER FOR CHEMICALS



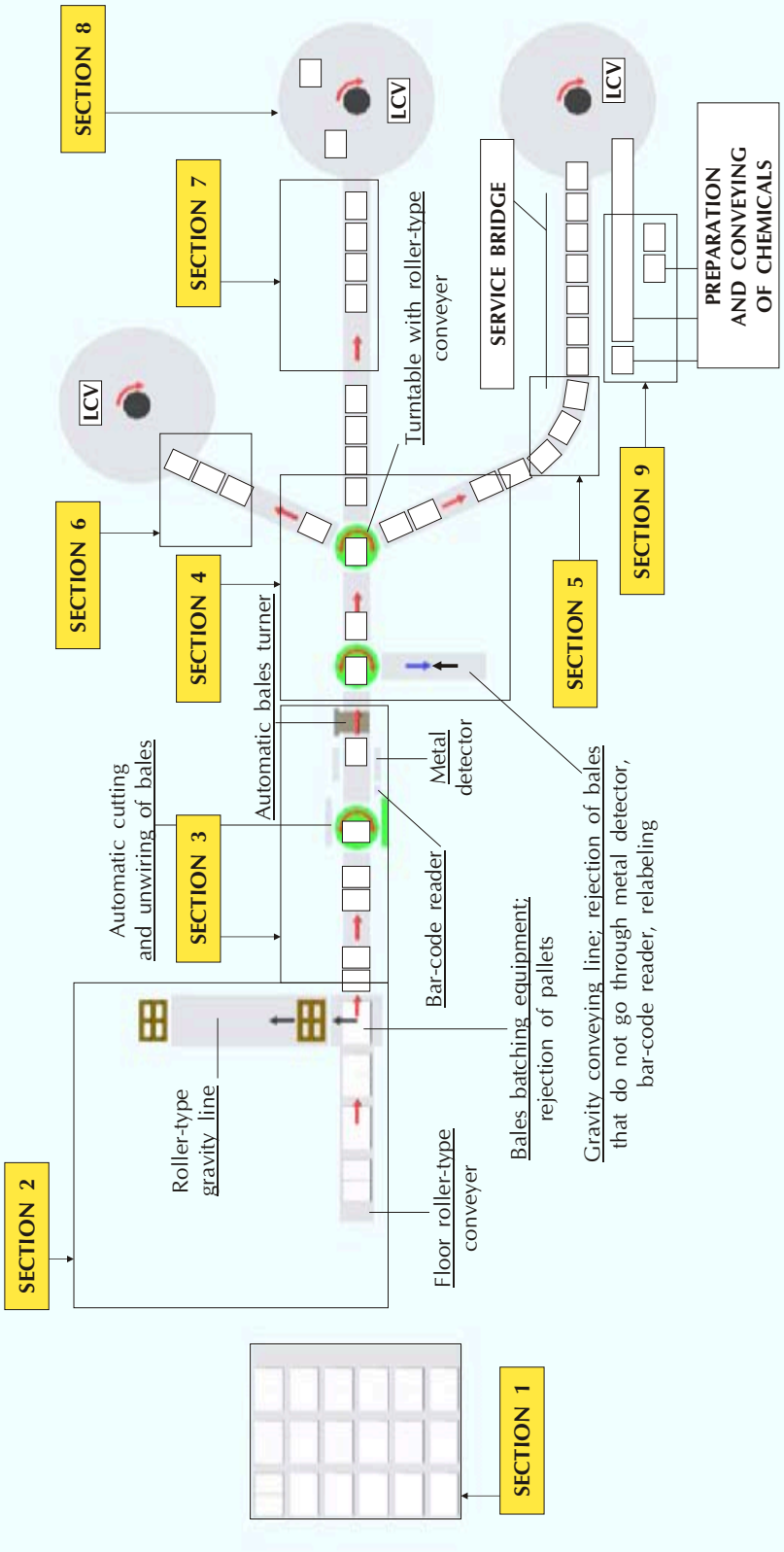



## EXAMPLE OF BROKE CONVEYER

*Waste reels splitter*



***EXAMPLE OF A MODULAR SYSTEM FOR CHEMICAL PULP CONVEYING*** *




| | |
|---|---|
| **SECTION 1** | Storage of bales of chemical pulp - cutting of steel binding bands on bales. |
| **SECTION 2** | Loading of bales with pallets by means of hand pallet trucks, labelling, separation of bales and pallets. |
| **SECTION 3** | Conveying of bales to automatic cutting of wires, bar-code reading, detection. |
| **SECTION 4** | Separation of bales, illegible bar code or detection of metals, bale rejected to side conveyer. |
| **SECTION 5** | Conveying of bales in bending, line change, roller-type conveyer. |
| **SECTION 6** | Ingoing chain conveyer with belt, design according to disposition, horizontally arranged. |
| **SECTION 7** | Ingoing chain conveyer with belt, design according to disposition, inclined. |
| **SECTION 8** | Pulpers LCV, their quantity according to required line capacity, chutes linked to pulpers. |
| **SECTION 9** | Roller-type conveyer, adjustable tables, handling equipment for tipping and batching of bags from pallets to next conveyers. |

** The conveying system, intended for waste paper bales, is similar. It is to be projected according to particular customer's requirements.*