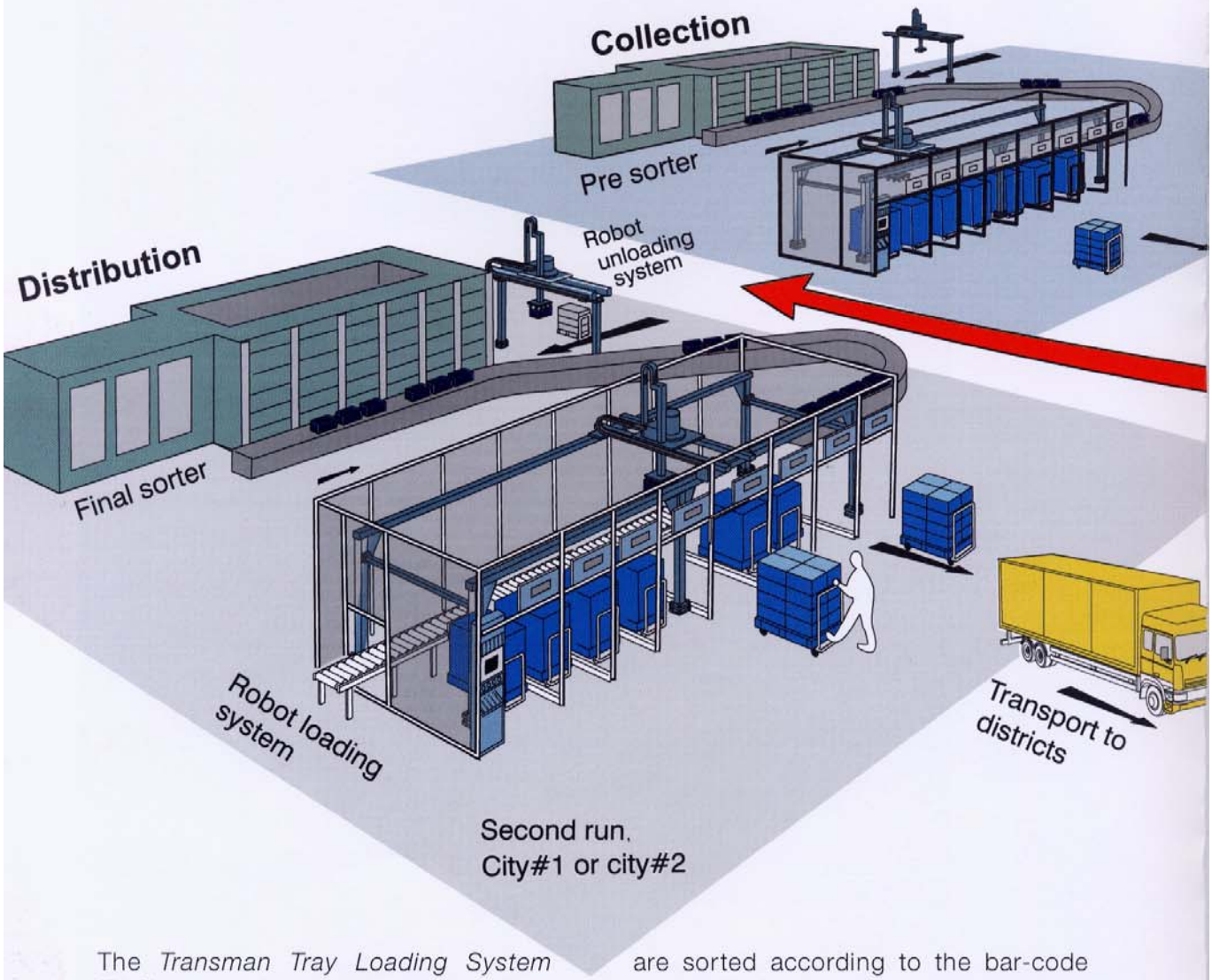
Automated postal handling

The new move in tray controlling

TRANSMAN®

Transman Robot Loading



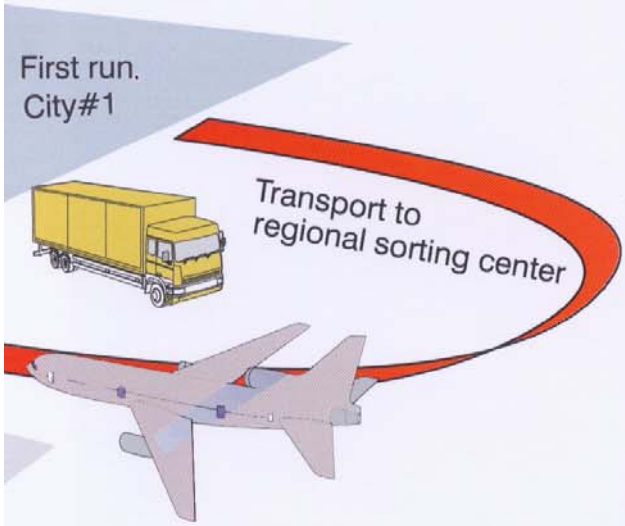
The *Transman Tray Loading System* (RLS) is a high capacity robot system developed to sort and handle trays downstream the Letter Sorting Machine (LSM). It is useful in collection and distribution at automated postal sorting centres.

As indicated in the diagram above, the *same* system of LSM and RLS is used for the different levels of separation.

The LSM collects the mail and sorts it into bar-coded trays. The trays are then conveyed to the RLS where the trays are sorted according to the bar-code labels. Each tray is put on a carriage with the correct destination.

Depending on the destination, the carriage is transported to another sorting centre, or just taken to the LSM once more for distribution sorting. At this second run local letters and letters arriving from other sorting centres are put onto carriages once again, this time sorted into smaller districts. The carriages will then be transported to its final district for delivery.

System



Turn-Key Systems

Transman has gradually focused our primary activities on postal automation and handling. Equipment for enhancing the materials flow in the sorting process is provided, and this includes robot systems, roller or belt conveyors and elevators. Trays and boxes can be handled and sorted with bar-code labels. Printers and scanners are also integrated in the systems.

The systems are adapted to each customers demands and Transman takes the responsibility for the installation, the start up, and the training of the customers operational and service staff.

Gripper

The grippers is a vital part of the system and several functions ensures a proper grip. The fourth axis, rotation, is also integrated in the gripper. Most trays could be handled with the gripper above, but adaptions to other geometries and cases are possible. For the RLS the trays are handled separately, while the RUS have a gripper that automatically adapts and handles 1-4 trays.

The Transman Robot Loading System is fully automatic from the LSM to the carriage. The trays are transported on conveyors, sorted with the help from bar-codes on the trays and piled up on the right carriage. Several functions are also included to verify the status of each tray:

- Damaged trays
- Trays with faulty positioned covers
- Overfilled trays
- Trays turned backwards on the conveyor

These are some of the problems that the robot will take care of, functions necessary to provide a fully reliable system, with a very high capacity also in the reality.

Transman Robot Unloading System

The Transman Unloading System (RUS) is a two axis system for the unloading of carriages when further sorting is to be done. It can be used to feed the letter sorting machine, or to feed the RLS. The system is smaller than the RLS, with a less qualified function, but necessary to make the sorting centre complete. Furthermore, automatic machines for the handling of tray covers are also provided.

Safety

The system complies with all CEN regulations, both regarding the electrical and the mechanical systems. Solutions that meet the highest personal safety demands, without capacity and availability restraints are chosen. For example, a carriage can automatically or semi-automatically be taken out of the robots area without any disturbances of the robots operation. It is however not possible for any person to reach into this area without causing an emergency stop.

Specifications of Transman Robot Loading System

Length:	9 980 mm (10 separations)	***Noise level***:	69 dB A
		Sorting accuracy:	100%
Width:	3 700 mm	***Available models***:	6 - 30 separations
Height:	4 100 mm		
Handling weight capacity:	25 kg	***Accessibility guarantee***:	98%
Capacity (flow):	7-8 trays/min*	***Accessibility at tests***:	99.33 %

* dependable of the number of separations

Above the high personal safety level, a lot of effort is put into the work environment effects. The noise level is limited, and measured to a maximum 69 dB A, in all applicable cases.

Specifications of Transman Robot Unloading System

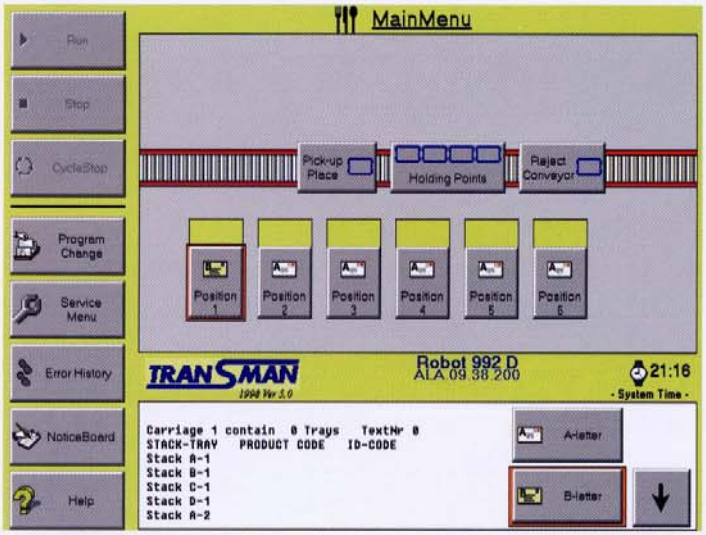
Length:	2 450 mm	***Handling weight capacity***:	100 kg
Width:	3 350 mm	***Capacity (flow)***:	16 trays/min
Height:	3 585 mm		

References

The systems is delivered to Sweden Post, to all sorting centres. The total number of Transman Robot Loading Systems is 43 in Sweden. The Norwegian Post has also placed an order for Transman Robot Loading Systems and Transman Robot Unloading Systems.

In the installations in Sweden and Norway, the following Letter Sorting Machines are used with the Transman system:

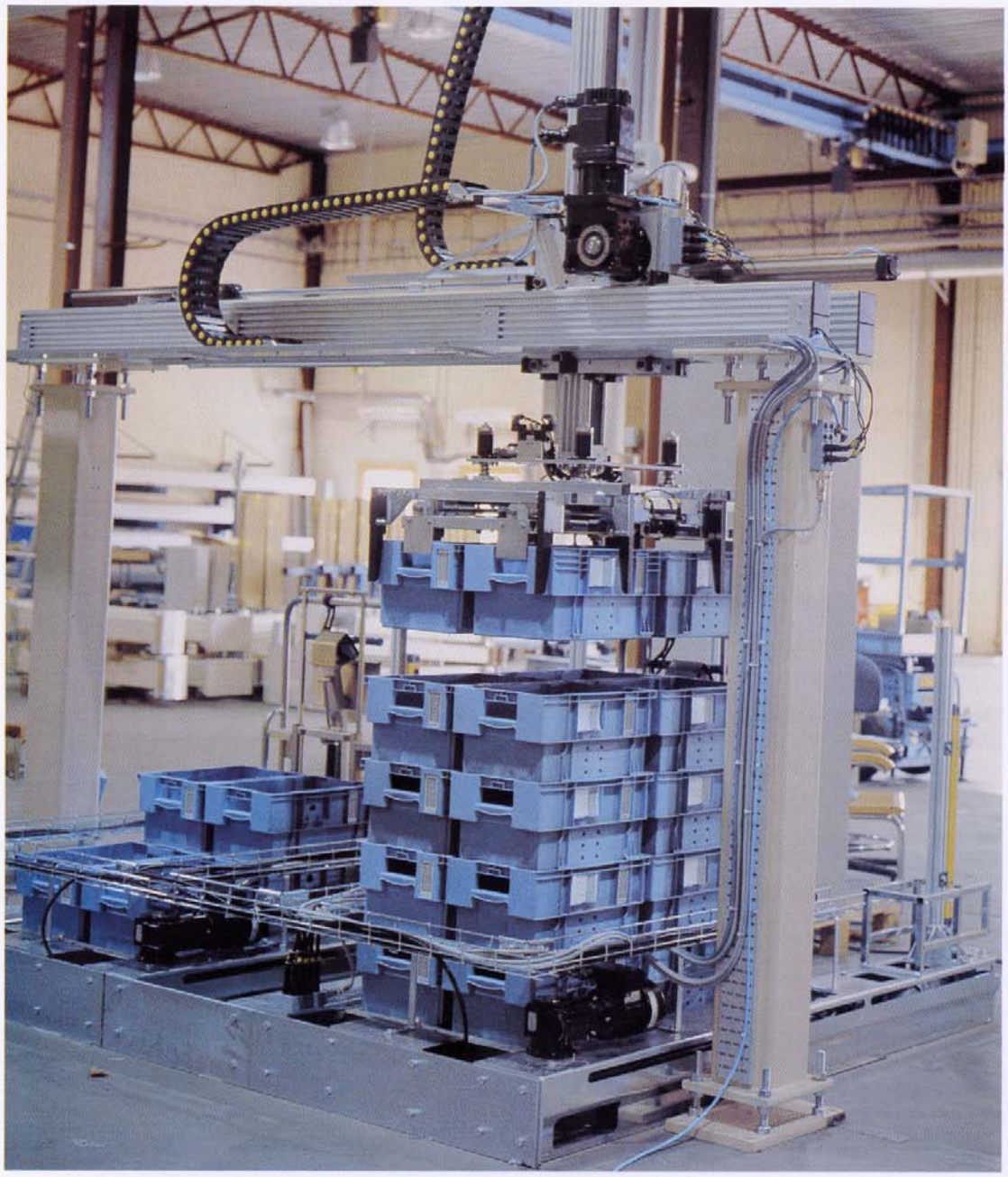
- Alcatel
- Siemens and AEG
- IBM/Mûller Martini



Control System

The Transman Robot Loading System is operated from Transcon, our own controller software and hardware. It is specifically developed for this type of applications. The user interface is a graphic windows NT application running on a panel PC equipped with a 12" or 14" TFT touch screen.
Several protocols are prepared for the communication with superior controller or peripheral equipment.

Transman Robot Unloading System



Transman provides the equipment needed to make the sorting centre complete. The Letter Sorting Machine is usually offering high capacity, but to make the plant equally efficient all along the flow, supporting handling equipment with high capacity is necessary.

To be able to fully utilize the Robot Loading System, a *Robot Unloading System* is a vital component. It boosts the capacity in the totality and also reduces the risks of heavy lifting even more.

The Robot Unloading System handles the tray, arriving from other sorting centres or recycled from the collection. The carriage is rapidly unloaded to a conveyor, feeding the LSM. Any number of trays (1-4) can be handled by the gripper. This is important when the carriages arrive only partly filled with trays.

Transman
The mail handling expert

Transman is specialized in automated materials handling and is one of the market leaders among gantry robot manufacturers.

With the extensive experience from industrial automation and specific know-how from the postal industry, Transman provides all the different solutions to automate the flow in postal handling, where automatic sorting machines are in use.

This will increase production capacity and quality. The high level of technology, used also to simplify the operation of the systems, provides a high degree of accessibility and operational reliability, boosting the efficiency for our customers.

Transman has been the first supplier of gantry robots in postal tray handling a[illegible] so one of the very first suppliers of industrial gantry robots in the world. Our systems handle any kind of trays.

Transman is a company in Atle Karolin AB, an international industrial group of companies. Atle Karolin AB is a business area of Atle AB, which is listed on the Stockholm Stock Exchange.

TRANSMAN®

Transman AB, S-619 22 Trosa, Sweden • Tel +46 156 524 00 • Fax + 46 156 174 76
E-mail: postal@transman.se • http://www.transman.se