telecom

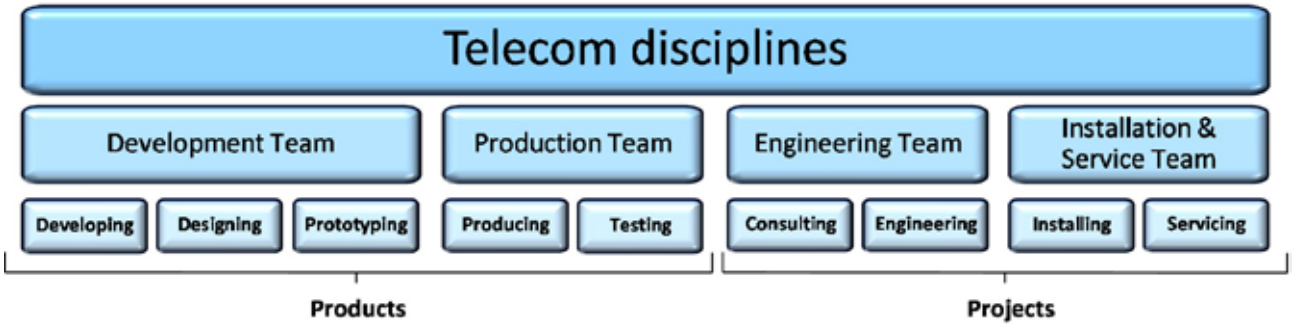
Telecom + Medical Tube Systems

At the heart of the modern hospital

Welcome at Telecom Tube Systems

Company profile Made in Holland

Telecom is founded in 1950 in Rotterdam, the Netherlands, and fully specialized in pneumatic tube systems. With its own Dutch development, production and service department Telecom covers all disciplines from developing, designing, prototyping, manufacturing, installing and servicing your complete tube system.



At Telecom we deliver the optimal fit for the customers' internal logistics process, a pneumatic tube system. We do this by combining full control on development and design of our systems with full focus and dedication to the customers' business. Why? Because we care about your business!

Telecom Certified Dealers

Since consulting, engineering, installation and service skills are crucial to obtain a reliable system, Telecom collaborates with local Certified Dealers to serve more than 12.000 customers in 45 countries. All dealers are evaluated each year on their technical knowledge, quality of consulting, installation and service.
All dealers participate in Telecom's Partner Program and can rely on our Training Centre, support with consulting, engineering, testing and commissioning as part of Telecom's commitment.

Telecom +Healthcare Approach

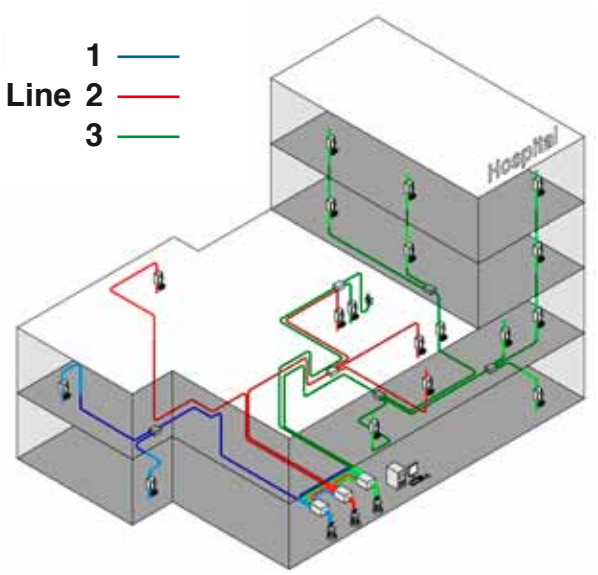
A well-designed and balanced system will save the hospital a substantial amount of money, year after year. However, specifying a pneumatic tube system, or collecting the requirements for a system, is not easy without experience and a structured approach.

Working with Telecom and their local Certified Dealers means you take advantage of over 40 year experience in designing and installing systems especially for hospitals. We understand your organization processes and internal logistics.

Our approach helps you	
1) Analyze the internal logistics process	to optimize efficiency
2) Conceptualize the proposal	to ensure the most cost effective design
3) Build your investment case	to justify your ROI (see hospital case pg.5)

Pneumatic Tube Systems

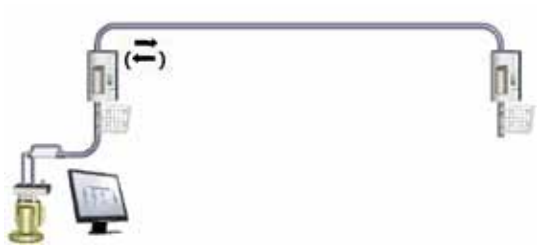
A basic understanding



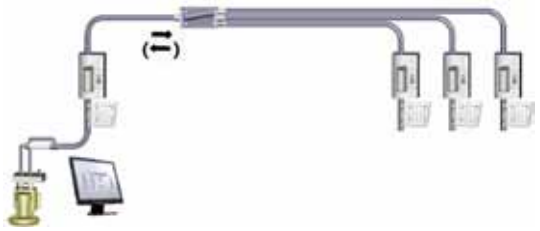
Pneumatic tube systems provide the means to optimize your organizations' internal logistics, by increasing productivity in all aspects of internal transport of materials that fit in a carrier and weigh up to 8 kg.

The tube system is a network of tubes that allows multiple users to send multiple carriers to freely chosen destinations. This network is easy expandable; multiple tube systems can connect to each other and still work independently. Medical tube transport costs a fraction compared to regular transport and is reliable, quick, shockproof, hygienic, silent and easy to use.

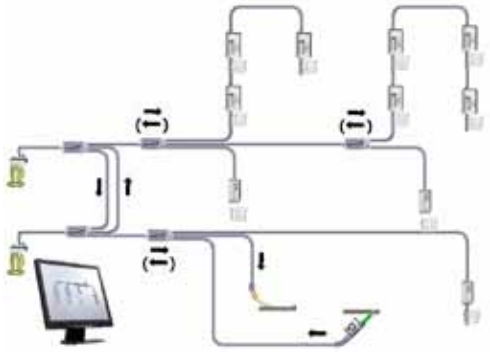
Example 3: types of system configuration



1. Point to point system
- Simple A-B connection
- Bi-directional
- Often used as special line (e.g. cytostatics)



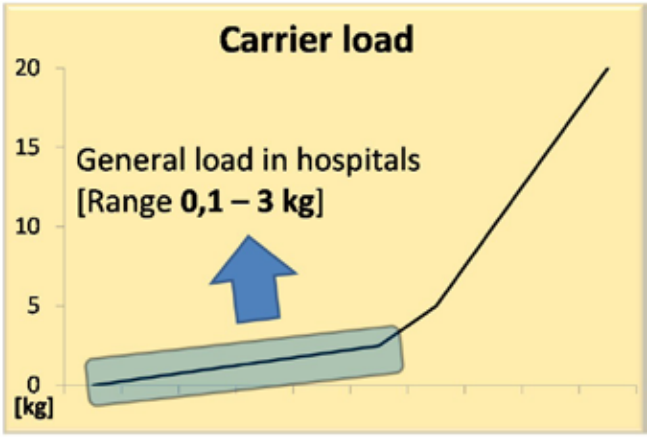
2. Single line system
- One to many / many to one
- Bi-directional
- All stations can send to each other

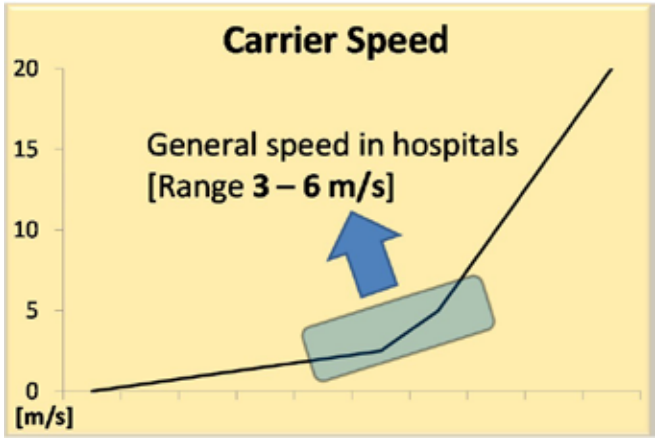


3. Multi line system
- Same as a single line system **+**
- Multiple lines connected with diverters

Pneumatic Tube Systems

Characteristics: maximum carrier load and speed vs. general use in hospitals





Examples of frequent transport use at our customers

1) Sample collection

Samples such as blood and tissue to/from lab, OT, ICU etc.

2) Medicines distribution

Including liquids, cytotoxic and cytostatic meds.

3) Small goods handling

Interdepartmental exchange of ward consumables.

Pneumatic Tube Systems

Payback time medical tube systems, example case

"80% of the hospitals have a payback time of < 24 months"

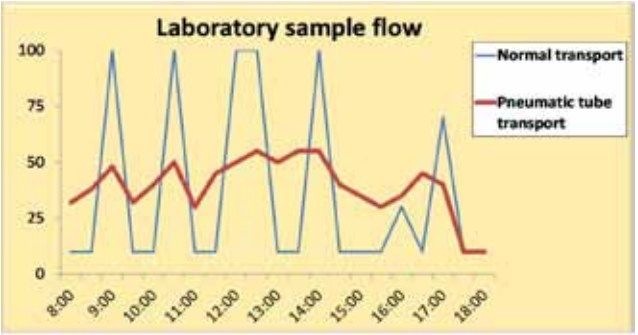
Variables

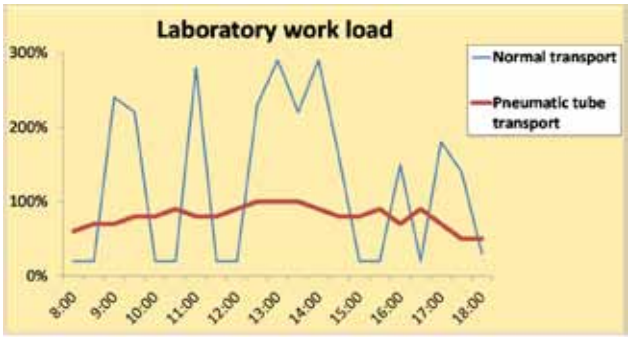
- 365 Days per year operational – 250 full working days
- 100 transportations (walking) per 24h, with 8 minutes as the average time per transportation

Cost per hour: € 10/15/20 → ((100*8)*250)*10/15/20 →
Transportation costs: € 33 000 / 50 000 / 66 000 per year
Payback time: **< 24 months** (new or renovated) with
1 - 2 % estimated operational costs of the initial investment.

***Payback time in real life is often much faster as this calculation doesn't include the advantages of a better workload spread and the fact that qualified medical staff is able to spend more time on patients.**

***For a more extensive calculation on your specific case, please contact Telecom or our Certified Dealers.**





Why Telecom Tube Systems for hospitals?

A system specialized on your needs

For over 30 years 70% of our customers are hospitals and medical clinics, resulting in a knowledge organization with a dedicated focus and a system specialized on your needs, the Telecom Medical Tube System.

The Telecom Medical Tube System

The Medical system, that is now used in over 40 countries and hundreds of hospitals, has been specifically designed for modern hospitals. It offers a reliable, fast and efficient solution to moving samples, blood, medicines, small goods etc. around the hospital site all year long.

Standards and regulation

The system meets the advice and guidance lines provided by the Health Technical Memorandum (HTM) on design, installation and operation of pneumatic tube systems in healthcare premises.

DH Department of Health
Health Technical Memorandum

For development of crucial parts of the medical system Telecom collaborates with:

Technical University of Delft,
the oldest and largest Dutch technical institution, for development of the Leak-Proof carriers that are certified by a Notified Body (TNO).

TU Delft

University Medical Center in Utrecht,
for development of the Automated Lab System and of multiple carrier inserts to transport blood samples. Both are now in use at their location.

UMC University Medical Center Utrecht

In addition, all our systems meet the following standards: German DIN standard for tubes, CE standard for mechanical engineering, EMC standard/EEC regulations for electronics and printed circuit boards.

System functionality - product sheets

The medical tube system has many features and properties that are not provided here. Product sheets, which provide a complete overview of functionalities and specifications of the system and its components, are available at Telecom and Telecom Certified Partners, **just ask us...**

Preview your system

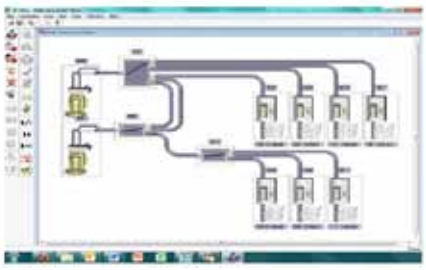
In order to preview your customized medical system, an overview of the components is given at “Overview main building blocks, pg. 7/8/9/10”. Please be aware that specifying your system is not easy without experience and our structured approach.
Telecom and Telecom Certified Partners have the knowledge and experience to provide a reliable contribution to your discussion about medical tube systems, **just invite us…**

Telecom Medical Tube System

Overview main building blocks

The medical system is built up from the main building blocks below, with various designs.

*Please notice:
For complete specified products sheets, we recommend to contact
Telecom or Telecom Certified Dealers.



PC Based System

Dedicated Controller (optional)

1) Control system

The advanced and user-friendly control system has a graphical layout that is easy to configure and administer on location or remote, while the system remains operational.
The control system includes a Computerized Management System with many smart features like authorized access, a full track and trace database, simulation mode for training and testing, data export for reporting and direct connection to the technical department for instant diagnostics and service.

Telecom Medical Tube System

Overview main building blocks

2) Stations

The Telecom Medical Tube Stations have an ergonomic design and are easy to operate. Authorized sending and receiving is also possible because the system can recognize staff, carriers and carrier content. All stations require minimal service because of maintenance free parts, such as: the complete gear mechanism, all bearings, self-adjusting seals and failure-free reed contacts. Automatic sending and receiving is available on all stations.

1. Saturn

- Front loading
- Send & receive
- Feed through & end station
- Lockable door

2. Luna

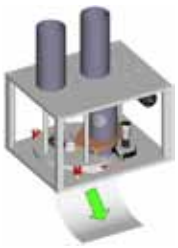
- Bottom loading
- Send & receive
- End station

3. ZOS

- Top loading
- Send & receive
- End station

4.Sliding Sleeve

- Front loading
- Send & receive
- End station
- Horizontal & Vertical use



5. Automatic unload Station

- Automatic Unloading
- Receive only
- End Station

6. Laboratory Station

- With empty carrier return
- Send & Receive
- End Station

7. Automated Laboratory System

8. Automated Pharmacy System

See page 11 for specified information on both systems

Telecom Medical Tube System

Overview main building blocks

Leak-Proof carrier

Carrier with lock

3) Carriers and Tubes

Carrier and tube diameters are available in many sizes, most hospitals use 110 mm and 160 mm. All Telecom medical carriers are durable, sterilize able (autoclave 10 min at 120°C) and provided with a swivel lid which guarantees the best closure available.
The carriers can also be provided with several locking/sealing mechanisms and a RFID chip for automatic homing and track & tracing.
Well-appreciated are our lockable certified Leak-Proof Carriers that can only be send in the system when locked.

Carrier Programmer

Automated laboratory carrier

Various inserts are available

4) Linear Coupler

The linear coupler is generally used in hospitals with multiple lines combined with high send frequencies and many stations. It couples multiple lines which enables you to make more efficient use of the (existing) lines. Telecom and Telecom Certified Dealers can advise you on the necessity of using linear coupler(s) in your system or a solution based on compact design diverters (see below).
The linear coupler is unique in its kind because of a design that ensures maximum availability of all coupled lines. The Telecom linear coupler takes waiting carriers from the line and places them in a storage area. This way carriers don't pile up in the line so the line stays available, minimizing transport times.

Telecom Medical Tube System

Overview main building blocks

5) Long Distance Coupler

The long distance coupler is used for transport between buildings and other long distances with high send frequencies. The coupler inserts arriving carriers, one by one without waiting times, into a continuous air stream that can take up to 5 carriers per line.

6) Blower

The heavy duty 3-phase blower, with a fully adjustable positioning valve, provides one system line with a variable air volume (suction and pressure).

Blower with MSV (Multi Positioning Valve) and double silencers

7) Diverters

Diverters are used in one system to connect multiple tubes and are also used to connect multiple system lines.

Diverter 3-way

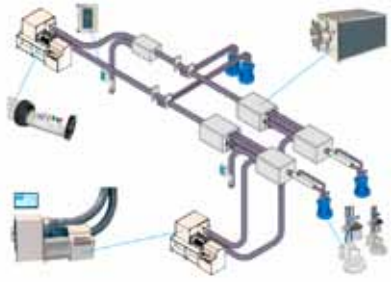
Diverter 6-way

Telecom Medical Tube System

Special Solutions

Automated Laboratory System

Developed in collaboration with the University Medical Center in Utrecht, the concept of the Automated Lab System is based on maximum user efficiency and maximum capacity. The system requires minimal effort to operate, thereby maximizing the user friendliness and preventing crucial user mistakes.



Operation

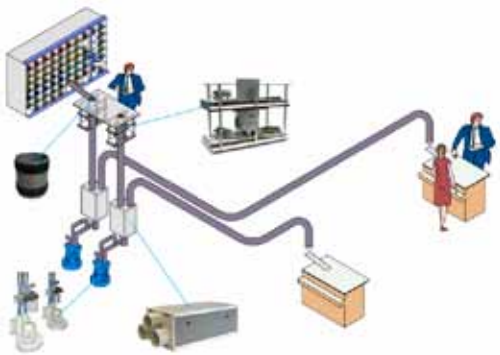
This high capacity Automated Lab System is used to transfer blood samples between sampling room and laboratory. Blood samples are sent in special purpose carriers, Leak-Proof and air pressure balanced, that are fully automatic opened and closed. In the sampling room an open carrier is always available, even shortly after sending. At the lab, empty carriers are recognized and automatically closed and sent back.

Automated Pharmacy System

The automated Pharmacy System distributes medicines from a central point to multiple distribution points. At the send station, a user or robot fills the station from above, which in turn fills the open carrier and sends it to a distribution point. At the receiving station, the carrier drops the medicines in a soft delivery area and goes back automatically.

Sending station

Receiving station



We care about

Just invite us...

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