

PLANNING OF PNEUMATIC TUBE SYSTEMS IN HOSPITALS

In healthcare facilities such as a hospital, many items, such as samples, medications, injections and blood bags, need to be transported every day. These travel hundreds of kilometers every day - which quickly becomes stressful for employees and is hardly feasible. Pneumatic tube systems in the medical sector make workflows more efficient and save staff from having to walk long distances. Transport is also safer and more hygienic, as special mechanisms can prevent cross-contamination. When planning and designing a pneumatic tube system, many specific needs of the customer have to be considered.

+ Efficient design

+ Clever stations

+ Thinking software



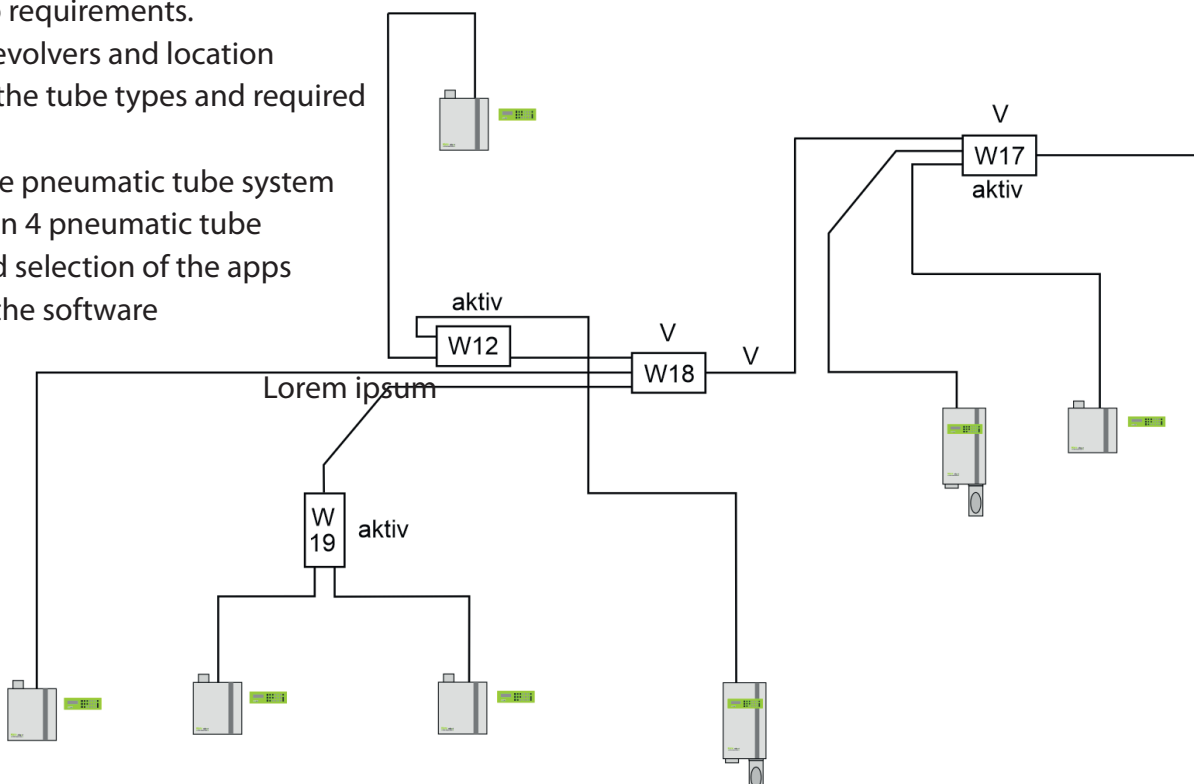
Design and planning of pneumatic tube systems

- The technical room of the pneumatic tube systems, i.e. where the blowers, revolvers and other technical components are installed, should have big ceiling heights.
- Furthermore, the ceiling height in the entire building is relevant for planning.
- When planning, the location of the installation shafts of the building should be taken into account. It is also relevant where the pipes will be located.
- In medically sterile rooms, such as the operating room or the intensive care unit, pneumatic tube stations should be used where there is no exchange of air between the room air and the system air. Furthermore, the use of HEPA filters for effective cleaning of the system air should be considered.
- The definition of the transported goods is relevant for an efficient planning of a pneumatic tube system. Examples of transported goods are: laboratory samples, pharmacy items, blood products, cytostatics bags and documents.
- It can be helpful to analyze the work processes of employees in different departments and estimate the transport volume. It should be recorded how many shipments are particularly urgent and between which locations the goods are transported. In this way, a detailed categorization of the transports can be made. The aim of this categorization is to develop the best possible understanding of transport patterns and quantities.
- In addition, the question should be clarified whether a speed restriction is necessary for the shipments for biochemical reasons.

Conclusions for the design of a pneumatic tube system:

Decision on multicarry zones and multisend stations, for faster dispatch of pneumatic tube shipments.

- Number of lines and zones
- Number of pneumatic tube stations and selection of types, especially according to requirements.
- Number of revolvers and location
- Selection of the tube types and required small parts
- Control of the pneumatic tube system by the RT-Win 4 pneumatic tube software and selection of the apps available in the software



Choice of pneumatic tube stations

- When selecting from different station types, individual requirements must be taken into account. On the other hand, there are various points that can be used to evaluate different types of stations.

Bottom Loading Stations:

- The station is ergonomically loaded from below
- No risk of incorrect loading or excess weight
- Air exchange: When the transport leaves the room, air is taken in; when the shipment arrives, air is released into the room. By using HEPA filters and air outlets, contamination from the room air can be avoided.

Front Loading Stations:

- Ergonomic loading from the front
- Low risk of incorrect loading
- No air exchange when a shipment leaves or arrives

More information about different station designs can be found here.

- In addition, when planning a pneumatic tube system, it should be noted that **pass-through stations** save pipes.
- Furthermore, different rooms require **different reception options**.



Bottom-Loading-Station



Front-Loading- & Pass-through Stations



Basket as a reception option



Conveyor belt as receiving option



Ramp as a reception option

Lab Stations

Every laboratory environment is different - it is designed differently and tailored to different needs. In order to significantly improve workflows for laboratory personnel, pneumatic tube stations must be carefully selected to suit the specific laboratory situation.

- Therefore, a wide variety of aspects must be considered when planning a pneumatic tube system in a laboratory.
- How many carriers are expected to be sent per hour? Depending on this, two pure sending and receiving stations or one combined sending and receiving station can be installed. With the separate variant, transaction rates can be doubled and the system is more resilient. For an even higher transmission frequency, several carriers can be transported and sent simultaneously. To do this, you need to install a multicarry zone and a station with multicarry sending function.
- How do you want the carriers to arrive in the lab? How much space do you have available in your lab? Via a conveyor belt, a ramp or a bend?
- Should both inbound and outbound carriers be tracked to ensure maximum transparency of pneumatic tube transports? All of our stations can be equipped with an RFID reader.
- What samples are sent to the lab via pneumatic tube? It may make sense to opt for the use of special laboratory carriers. These are leak-proof and pressure-tight. They are also temperature-resistant. Cross-contamination can be prevented by firmly assigning the laboratory carriers to the laboratory and fixed home stations. In addition, various inserts are available for both the laboratory carriers and the other carriers.



Insight into a laboratory with receiving stations with conveyor belt

Carriers and inlays - Protected transport

- A wide variety of goods are shipped using pneumatic tube systems. Paper that is rolled up and placed in the carriers does not need any special protection, whereas blood samples must be transported safely to the laboratory. For this purpose, foam inlays are available to protect test tubes from shocks. Hörtig Rohrpost also offers special inlays for many other items. Specific needs should be considered when selecting carriers and inlays.
- Among the main wear parts of a pneumatic tube system are the pneumatic tube carriers. Using RT-Win 4 pneumatic tube software, automation can be set up so that the carriers travel to a washing station after a special cycle. There they can be cleaned and maintained. An industrial washing machine with special accessories can also be provided.



Various carriers and inlays

Long lasting support & maintenance

- At the heart of our business activity is, among other things, our outstanding performance in the area of customer service. Reliability and fairness towards our customers, suppliers and employees is a matter close to our heart. We implement individual, needs-based solutions in close cooperation with the customer, architects and our specialist staff.
- As a service plus, we offer our customers maintenance contracts to have the systems checked professionally and at fixed intervals. For malfunctions, we have set up a "24/7 hotline for remote maintenance" so that any faults that occur can be rectified immediately, quickly and cost-effectively.
- With the purchase of a pneumatic tube system from Hörtig Rohrpost, we establish a business partnership that will last for many years. We confirm the spare parts guarantee and outstanding support at all times.