

Fiber optic network in giant scale

Two million meters of fiber cable ensures communication paths at the New University Hospital in Aarhus.



About 400,000 square meter under roof will house "The New University Hospital in Aarhus" when it is planned to be finished in 2019.

It is easy to set course for Denmark's currently largest construction site. The contours of numerous construction cranes in northern Aarhus shows the way.

From the highway, draw the hospital "The New University Hospital in Aarhus" bigger and bigger on the horizontal line around Aarhus.

It is more complicated to find your way to the "heart" of the highly secured construction site on the 125-acre area.

Central Denmark Region DKK billion expensive project is combining four existing departments of Aarhus University Hospital into one "super" hospital.

This is done by building 250,000 new square meter and rebuild around 50,000 of the existing 160,000 square meter hospital buildings in Aarhus.

The project will be finished in 2019, when the last renovated buildings are renovated.

Today there are more than 3,000 employees. When the hospital is fully operational, there will be 9,000 employees to receive the estimated 32,000 daily patients - or in the region of 1 million patients a year.

"FIBER NEWS" has been visited the huge construction site to give a little insight into how daily communication is ensured in this giant complex when it is put into operation.

Roughly two million meters of fibers and an ap-

propriate amount of backbone cable, are going to be connected to only two redundant cross-fields. They provide continuous connection to the approximately 11,000 local switches.

Because there are, only two cross-fields is unique in itself. The overall installation has been implemented in the construction from the start and that is why it can be kept very simple.

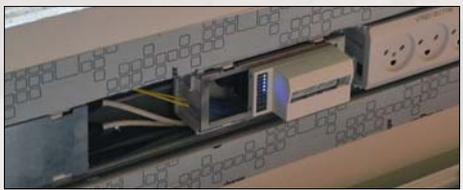
The simplicity should be compared to a high double-digit number of cross-fields if a similar network should be established in an existing building of the same size.

When only two cross-fields are needed, a huge saving of physical space, cooling, power and debugging.

IT security is obviously a major factor in a super hospital. It will also be increased by this unique solution.

The Contractor

"FIBER NEWS" is visiting MB Networks A/S who



Nobody knows the exact number, but roughly 11,000 switches must be installed.

won the contract in building giant network physically. The hospital is built in 11-13 stages and there are tenders on all the major stages of the main contract. This means that several construction companies are in the construction site at the same time.

At the moment winter is knocking and the weather usual puts a stop for some jobs, but from spring 2015 onwards, there are about 1,200 workers to operate simultaneously.

They build together for between three and five million DKK a day - every day!

MB Networks A/S in the interests of consistency of the overall network, selected as main contractor for the entire network.

This means that the MB Networks must cooperate and coordinate with many different companies. Deadlines and planning is therefore a huge task to keep track of.

Project leader Søren Korsgaard Kjeldahl is fulltime employed to do the job of planning. We find him in his office in the contractor "huts" especially made for housing all the workers.

Between phone calls Søren Korsgaard Kjeldahl explains "We have calculated unit prices on everything. What is the cost for example for one meter of fiber network.

This means that each subcontractor can calculate what it costs to have us working at any given part of the building.

"We receive demands and requests from the hospitals Advisor Group which we must implement as a consistent solution throughout the construction of the hospital.

We are therefore forced to follow everyone's schedules very carefully or we face fines that can exceed more than DKK 10.000 per day if we are delaying other subcontractors.

It can happen that we are not allowed to do things in the order we want.

"It can give some challenges, but we kept our time schedules so far," continues Søren Korsgaard Kjeldahl with a smile, and adding "we are building a mid-size town in a few years".

Special demands

Also building the hospital offers other requirements than normally encountered in the industry.

I.e. will gas-connectors be used everywhere not to spread bacterial growths.

They will need flame-retardant tubes, which have given challenges to suppliers like Emtelle.

Because the existing part of the hospital is in use, noise requirements have been a demand from the hospital board and are very strict.

For example has Fremco delivered special quiet compressors and hydraulic pumps.

Fortunately, MicroFlow Touch from Fremco is perhaps the market's quietest fiber blowing machine, which also had a significant influence on the choice of this particular model.

Flexible network structure

"Because the network structure is built up in ducts, a 4-fiber can easily be upgraded to a 12-fiber if an area needs to have more "juice" while everything else is in operation," says chief fitter Jesper Bolding.

Jesper Bolding continues: "the fiber network must bear all communication. It can be anything from patient monitoring to when the blinds must go up."

"Or everything from thermal management to patient communication in and out of the hospital. We build the communication highway, but we do not decide what kind of information is going to run on it. It is the hospital itself, but only your imagination is your limit," concludes Jesper Bolding.

The fiber network at the hospital is along with



Chief fitter Jesper Bolding is guiding the technician who is blowing a few hundred meters fiber into the already vastness of Emtelle multi ducts found at the hospital. For the task, one Fremco MicroFlow Touch that really comes to the test with a total of two million meters fiber.

several other solutions a pilot project. The other regions in Denmark monitor with interest the project. Especially in the regions of Northern Jutland and the island of Funen who are going to start up similar projects of the so-called super hospitals.

Several media have recently been criticizing the pilot project, especially from doctors that believe the new super hospital constructed with not enough beds to patients.

The correct number of beds we should not make us wise on.

We hand it over with confidence to the region and the doctors to agree on, but on the one area we know they do not run into capacity problems.

It is on the fiber network. Compared to tradi-

tional copper cables contains this network a massive capacity.

Patients, families, physicians and nurses can go ahead working with no delay from cyberspace.



On each floor there is a cross point that collects and divides each fiber to finally end up in one of the only two cross-fields.



This model shows the fully developed hospital when it is finalized in 2019.

Great international trade show experience

Fremco has participated in numerous exhibitions, but never as an exhibitor. This fall Fremco radically turned the tables.



More than 5,500 international guests visited the fiber optic ECOC Exhibition in Cannes. Fremco Sales had some great first "expo experiences. Sales Director Rasmus Kilt (At left) is greeting guests in our popular stand.

Take two pallets, load them with superior fiber blowing machines to the point where you almost cannot see over the goods. Ship them a couple of thousands of kilometers south in a straight line from Denmark - a few weeks before the fiber blowing machines are going to be exhibited to the masses.

Then follow by plane, wrap it all out and put it nicely up of nine square meters. You are ready for exhibition!

Very brief, however this is what went ahead at Fremco's exhibition premiere at full scale.

At the Riviera of France, the whole Fremco product line was for the first time lined up for free inspection. Everyone was looking, testing, asking and Fremco staff explaining, when a good part of more than 5,500 international expo guests visited the heavily manned Fremco stand during the three days of the exhibition.

Participation at the ECOC 2015 was the first step in a new strategy that means greatly increased branding of Fremco name worldwide. From the interest shown by the visitors it was mission complete. Fremco name is now spread out to an even wider audience.

"We have received great interest and positive feedback, with a number of quality leads from people who are interested in buying our machines. In addition, many new leads we can pass on to our existing distributors. Moreover, we had a handful of serious meetings with potential new distributors. All in all a success" says sales director Rasmus Kilt.

The expo was also participated by Fremco UK distributor "Mills Ltd" with a great stand and Fremco Romanian distributor "TelePrecision" who joined as guests.

The only drawback was lack of time to enjoy the beach life just outside the exhibition center!

"Elmässan" Expo 2014 Stockholm

Also in the Swedish capital of Stockholm was Fremco strongly represented on 22nd - 23rd of October at the Swedish electricity industry's biggest trade show "Elmässan" had Fremco distributor "DoNet" built an impressive stand with Fremco fiber blowing machines as the main point and a lot of dedicated staff.

Fremco was also participating by regional sales manager John Bisgaard. The Danish - Swedish threesome had a lot of success by teaching the visitors about fiber blowing machines and the technique behind.

Many installers with courage to try to work with

fiber technique and individual tele companies got inspiration on how fiber customers can be connected in a highly efficient manner.

DoNet experience at all great success in the Swedish market now.

Through a focused effort has DoNet in a short time built up a large market share in an upward market.

The combination of a strong sales effort and quality machines at a very attractive price, has paved the way to customers and success. On top of that, Fremco blowing machines can be managed without problems in cold weather, via the hydraulic power pack, is also something that is exceptionally good to offer - especially in our neighboring countries where the winter can be very cold.



Sales manager Lars Marminge, DoNet (at left) shows gear to installers on "Elmässan" in Stockholm.