

Tripling of Production Area

This spring has been quite busy for Fremco. In February our entire stock, production machinery and administration moved to new premises in Frederikshavn. This means that Fremco's production area has tripled as per 1st March 2015.



The 1200 square meter building triples Fremco's production area and allows for future capacity expansion.

The great Danish shipping magnate Maersk Mc'Kinney Moeller ran his business on a basic principle of "take care of today, actively prepare for tomorrow". Without any further comparison, Fremco also prepared for tomorrow when we moved to new facilities in Frederikshavn early spring.

Our production area has tripled to 1200 square meter in a modern building in the northern part of Frederikshavn, the sea port with extensive ferry service.

"We had reached the limit as to how much production we could stuff into the old building," says the owner Niels Soegaard Hansen, and he continues, "we were simply spending too much time moving things around over and over again. Furthermore, we had sensitive production areas right next to areas with raw machining - this was challenging because we could not run production in both areas simultaneously. Obviously, this was very time consuming and a source of irritation when planning production.

On the new premises, all production branches are placed separately, and they run independently. This gives us much more flexibility and

more uniform results".

Niels Soegaard Hansen also tells that in connection with the change of address, Fremco has invested massively in new production machines and optimization of the existing ones. Therefore, everything is now geared for increased production.

Aimed at the Future

A heavily increasing growth rate during the last couple of years has demanded Fremco to ensure the possibility of increased production volume. For starters, the change of address has already resulted in production of larger series of the individual machine models.

The new premises also offer multiplied storage capacity, giving us better opportunities to meet the demand of our customers and enabling us to execute orders on very short notice.

Niels Soegaard Hansen expects there will be a need for more production staff in the long term, but at this stage he cannot say how many nor set a date for staff expansion.

Administration has already expanded in connection with moving into the new building.

New Employee

As of 1st April Jane Steen is our new employee in sales. She is our back-office, primarily handling orders and shipping. Jane Steen comes from a similar position in a manufacturing and exporting company, and therefore she is well prepared for handling these tasks the best way.



Jane Steen is employed as "back-office" in sales as of 1st April. Jane primarily takes care of order processing and she also answers the phone if you call to the office.

Fiber in Existing Infrastructure

North America has gained more appetite for fiber networks. After tentative efforts, one of the three largest tele companies in Canada has succeeded in offering fiber to the home - especially in new developments. Now the other companies fall into line in new and existing infrastructure.

USA and Canada have a long tradition of attaching cables to buildings or hanging them in existing masts. However, many supply companies have now seen the advantages of installing ducts in the ground concurrently with the spread of fiber network.

In co-operation with Fremco's local distributor "Toronics", Fremco has just visited some building sites in the neighbourhood of Toronto. Common feature for all the sites is that supply ducts of all kinds have been buried alongside roads and to the individual households - contrary to the forest of wooden and iron masts seen previously.

With immigration numbers of 500,000 to 600,000 persons per year - in Toronto alone - the need for new house building is quite obvious. When we visited the building sites, winter had just been replaced by spring, and the sites were full of activity.

The primary reason for Fremco's visit was a special case of reference. It was not in Toronto, but 150 km away in the suburbs of Niagara Falls. A fairly new residential area is being expanded considerably. The existing part of the residential area is equipped with coax cables in preinstalled ducts. Via both the existing and new ducts, we should attempt to blow in fiber cables for both the existing and the new areas.

When they designed the duct layout in the existing area, they did not consider a later expansion. This meant that the layout of the new supply cable was very challenging. Almost 1200 m of cable was to go through two 180° and nine 90° turns. The first 550 meter through a pre-installed 4x10 mm multiduct. The next 150 meter through a new 10 mm microduct in a 1 1/2" duct with an existing 20 mm coax cable. And finally 450 meter through a 1 1/4" duct with a new 10 mm microduct.

Using a MultiFlow, the microduct was relined on the last stretch. On the middle shortest stretch, there was not room enough for both the 20



The MiniFlow RAPID machine showed that it can blow 1200 meter of fiber into a microduct with many turns.

mm coax cable and the 10 mm microduct. We ended up with a solution with a smaller coax cable, which was pulled through the large duct together with the 10 mm microduct. We then connected all microducts on the full stretch, and the cable was blown all the way through using a MiniFlow RAPID.

Before Fremco was there, two other suppliers had been involved in this extremely difficult job, but they were not able to come up with a solution. To put it modestly, Fremco's machines and know-how solved this job to the entire satisfaction of all parties involved.

Many theoretical solutions had been discussed

prior to the actual working process. To the great satisfaction of Toronics and the end customer, it was finally proven that it is physically possible to use the existing infrastructure to supply the individual homes with fiber - even without compromising with the solution of installing the ducts in the ground, which only leaves visible lamp posts and a few street cabinets with splice connections.

The tele company can now move on and further develop their methods and focus on the establishment of large scale fiber networks in similar residential areas.



With the arrival of spring in Toronto, there is extreme activity on many and large building sites all the way around the city.

Challenges hidden in the ground...

It is common knowledge that fiber blowing requires fairly straight ducts with close to full passage. Luckily, many blowing jobs work fine, but technicians often face problems with the buried or relined ducts. Problems that are not directly visible as they are hidden beneath the surface of the ground.

A situation occurring repeatedly is when cables get stuck in buried microducts. Time is money, and digging-up is even more money. For obvious reasons everyone would wish for ducts always lying perfectly in the ground. Unfortunately that is not always the way things are in real life. In those situations, we often see operators trying to force cable and machine beyond maximum to avoid digging-up. Eventually this will usually result in a broken fiber cable. Many factors can influence the situation. Is the cable maybe not stiff enough? Is the compressor too small? Has lubricant been added? And in the right quantity? Or is the blowing machine maybe not good enough? In nearly all cases, it is the human factor that causes the problem. Not by ill will, of course,



The picture is clear. The inner diameter of the microduct has been reduced by more than one third, and the fiber cable can obviously not get through irrespective of amount of air or the performance of the blowing machine.



The microducts are tight and allow foam sponge and air to pass. Unproblematic on the face of it. Please note that all connectors have been placed right next to each other very close to the main duct. This means that the total diameter of the microducts by far exceeds the inner diameter of the main duct. And in this case the result is two bent ducts. Had the connectors been staggered by the length of a couple of connectors, the problem would never have occurred.

but in many places we see the "sins of the past" neatly buried by those who originally installed or relined the duct - or by those who may have done other kinds of work right close to the duct.

The Specific Job

The pictures shown here are from a job in a Danish urban zone stretch in Mid Jutland. The situation is that a 40 mm main duct has been relined with seven 10 mm microducts over a stretch of approx. 6,500 meters, obviously with various connections on the way. The duct arrangement in the wells is fine, but the ducts are not of recent date. Most of the ducts are already occupied.

The technician is to blow a new 6 mm fiber cable into one of the vacant microducts, using a MiniFlow RAPID. Air supply comes from a screw compressor with a constant airflow of 1,000 l/min and 15 bar. The first 630 meters go smooth-



In this case, the technician had mounted a cable tip with half a millimetre larger diameter than the fiber cable. The tip became fully wedged in the bend.

ly, but then the fiber cable suddenly stops. Luckily, this is an experienced technician, who stops the machine in time and does not try to force the cable any further, as there is every indication of an error in the microduct. He measures up the stretch of 630 meters and ends up in a peaceful place on flat ground by a roadside with no other visible installations.

The digging-up shows that the contractor, who originally relined the duct, neglected to stagger the connectors while connecting the microduct ends. You can see this in the picture to the left. Having repaired the damage, the remaining blowing process went smoothly and without problems.

Had the technician just kept pushing and broken the fiber cable, he would have started an endless series of phone calls between suppliers and customers - it takes time and a lot of money.

